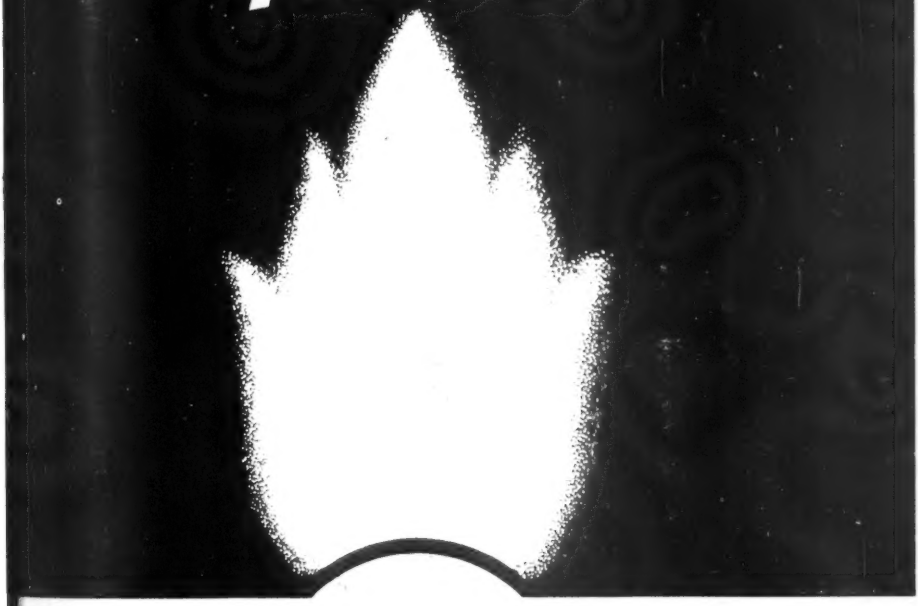
BUTANE-PROPANE News



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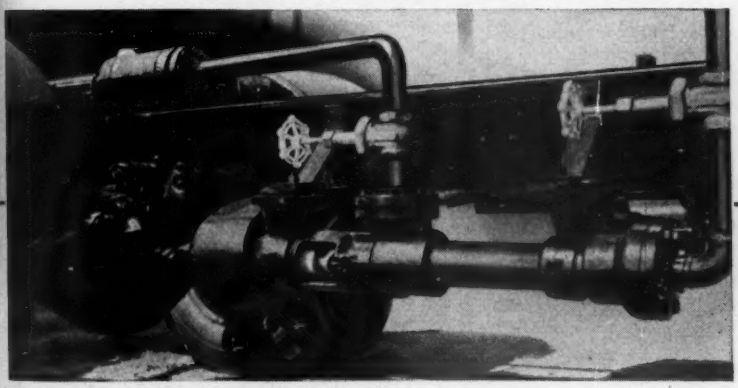

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Volume 2
No. 4

BUTANE-PROPANE News

APRIL
1940

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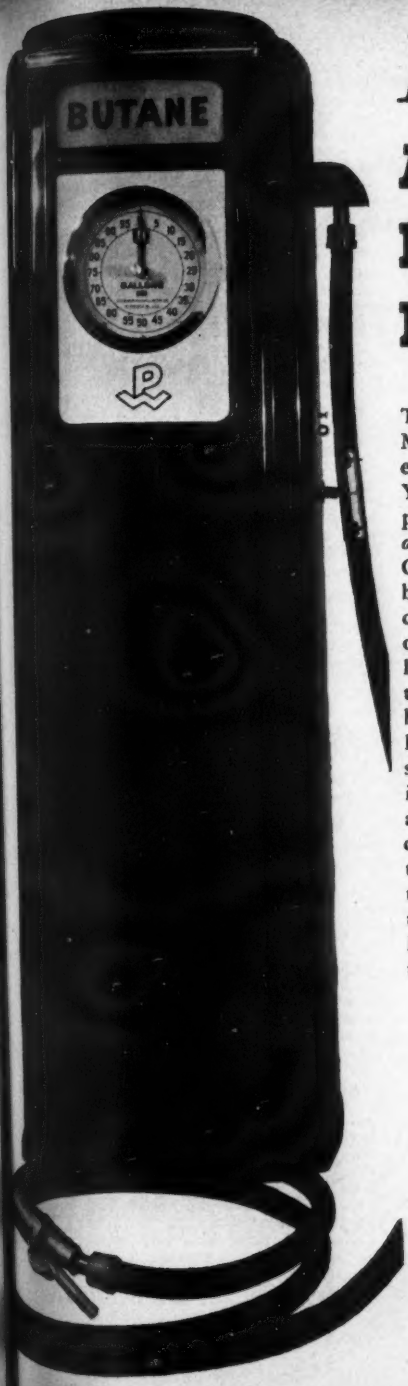

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ACCURATE L. P. G. METERING!

This patented P-W L. P. G. Dispenser and Metering Unit, the product of 7 years experience, is a real gallonage and profit-builder! Your customers will prefer to patronize this pump because its accuracy assures *they pay only for the exact amount of liquid fuel ordered!* Only the P-W unit can give you this accuracy because only the P-W dispenser holds a solid column of liquid in the metering chamber; only this dispenser delivers a solid column of liquid into your customer's fuel tank through the P-W patented filling nozzle. This accuracy benefits you, too, for it gives you positive gallonage sales control. You'll prefer it for its hi-speed delivery, its 100 gallon registering dial, its trim appearance and its safety features such as "dead man" control, explosion-proof motor control switch, illumination and its quick detachable wet hose dispensing nozzle. Conforms to codes. Be the first in your area to install this business-building unit. In writing, ask for literature and specify type of pumping unit to be used.

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CONSULTING AND CONSTRUCTION ENGINEERS
1625 SOUTH ALAMEDA STREET
LOS ANGELES CALIFORNIA

LETTERS

● **BUTANE-PROPANE *News* welcomes communications from those identified with the liquefied petroleum gas industry, but readers will understand that this magazine does not necessarily concur in the personal opinions so expressed.—Editor.**

Gentlemen:

Is it possible that you may have any reports on underground storage tank installations that have been dug up for inspection? I would like information on various states of preservation of containers after they have been buried several years.

FRED C. KING

King Brothers, Incorporated
Portland, Oregon

This would be valuable information to dealers and consumers, alike. To be sure, there will always be a variation, in accordance with the quality of tanks used, the coating and local conditions affecting ground moisture, etc., but any actual experience would be valuable. Have any of our readers made tests that would throw light on this subject?—ED.

●

Gentlemen:

We are interested in securing names of various manufacturers of the following gas appliances for use with propane gas: Gas irons; brooder stoves, and home lighting fixtures. We would appreciate it greatly if you could help us in this matter.

SAM BENDIX

The Bendix Company
Wood Lake, Minnesota

There is a manufacturer of propane brooder stoves in your own state. It is the A. R. Wood Manufacturing Co. at Luverne, Minn. Another factory of that company is located in Santa Cruz, Calif. Lighting fixtures for use with liquefied petroleum gas are manufactured by the General Gas Light Co., of Kalamazoo, Mich. We understand there are manufacturers of gas irons located in New York, Chicago and Milwaukee.—ED.

●

Gentlemen:

It appears you are getting plenty of cooperation in an effort to rename the gas.

It cannot be a name as all-inclusive as "Liquefied Petroleum Gas" because the authorities report it has many miscellaneous properties in different units at various temperatures and pressures. It cannot be "Propane" or "Butane" because the unadulterated product just isn't used. It is not our No. 1 problem. To us it is "Hydrogas" (short for Aliphatic Paraffin Hydro Carbon Gas).

M. E. McKAY

Southern Steel Company
San Antonio, Texas

●

Gentlemen:

Please inform us as to the best heater to use when the mixture is 40% propane and 60% butane. We have tried several makes of heaters but none of them gives very much satisfaction.

O. H. BOLLUM

Fournette Plumbing Service
Opelousas, Louisiana

There are a number of advertisers in this issue of BUTANE-PROPANE *News, any one of whom can supply a heater suitable for your specific mixture if you will so stipulate in your order. However, it is always important that heaters should be officially approved for use with liquefied petroleum gases by American Gas Association Testing Laboratories.*—ED.

●

Gentlemen:

I am writing to learn if you have any information on an air conditioning unit which can be operated successfully on butane gas and which is practicable for domestic use. If so, will you kindly recommend to us the manufacturer and also some dealer who has installed and serviced such equipment.

B. S. BROOKS

President
Drew Butane Sales Company, Incorporated
Drew, Mississippi

Some of our advertisers can help you, but we, too, would like to hear of actual installations of air conditioning units, costs of operation, service problems and other facts. Who has some practical information?—ED.

WHICH SIZE DO YOU PREFER?

During the past month we have received two comments regarding BUTANE-PROPANE News that are exactly opposed to each other. They both refer to the size and appearance of the magazine. One compliments us upon the small, pocket-size edition that has always been used. The other urges us to increase the size in the interest of better display and larger illustrations.

This is a problem that confronts every publication—the best size for discriminating readers who are spread clear across the country. We are going to give our readers a voice in this matter. It will influence our own decision. What size do YOU want to see this book? Just as it is? Larger? Why?

Sit down right now and write us your opinion. Write us frankly. Tell us the size you want and back it up with your reasons!—EDITOR.

Anderson ENTERS THE LPG MARKET WITH "SEALED HEAT" RANGES

CUSTOM BUILT FOR Your MARKET

Now housewives far from the "mains" can share with their city sisters this biggest miracle of modern cooking—*"sealed heat"—cooking with the gas turned off.* The new line of Andersons, engineered for the liquified gas market, is ready!

What a world of profit opportunity this opens for you! News of these sealed-heat ranges is reaching your customers. News of the "sealed-heat" principle that saves flavor and kitchen hours — where a few minutes of gas does the work of many — and helps you to build lasting profits through satisfied customers. News of the host of unique features—35 in all—that distinguish the Anderson from any other range in history.

This ground-work is ready for your cultivation. It represents an opportunity for increased profits that you should investigate NOW! For facts, for proof of these profits, write on your letterhead or mail the coupon TODAY!

The ANDERSON ARISTOCRAT COOKS on "SEALED HEAT" with the GAS TURNED OFF!

Models available in white and ivory in a wide range of prices, approved by the A. G. A. for use with LP gases. All offer new beauty, new performance and new features galore! Plus the greatest sales appeal in range history —*"cooks with the gas turned off."*

Anderson Stove Co., Inc., Anderson, Ind.

Gentlemen: Tell us all about increasing profits with Anderson "Sealed-Heat" Gas Ranges.

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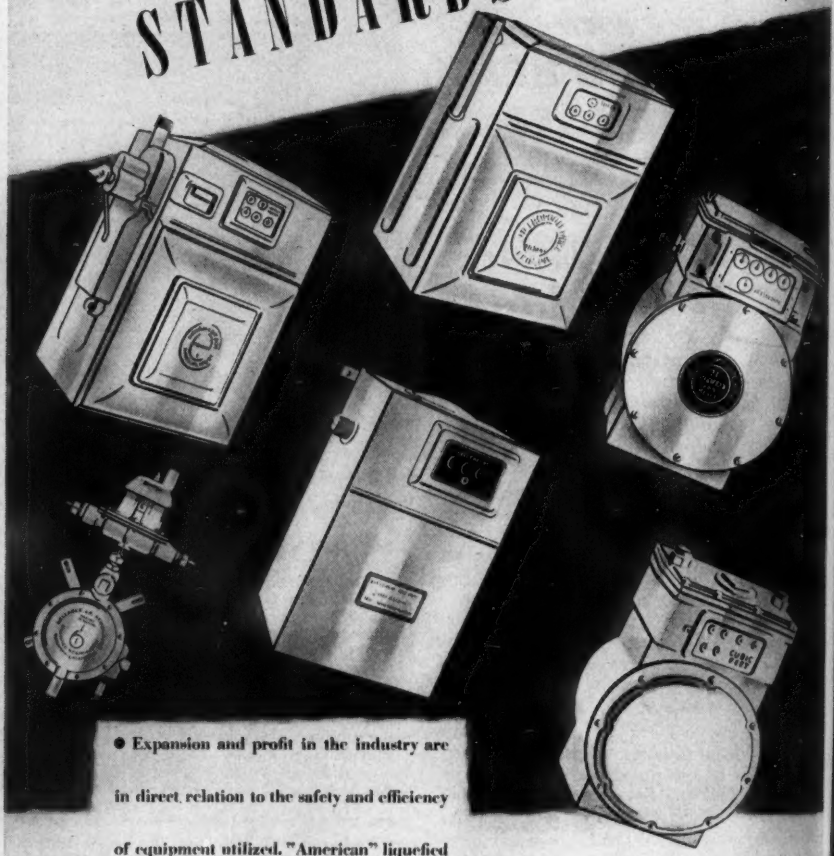


● Expansion and profit in the industry are in direct relation to the safety and efficiency of equipment utilized. "American" liquefied petroleum gas meters and regulators hold to the high standards set by the millions of its instruments in general gas service.

GENERAL OFFICES • 60 EAST 42nd STREET, NEW YORK, N. Y.

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

MAINLY BEYOND THE MAINS

LPG STANDS BY LPG, while often regarded as an advance guard preceding the extension of city gas mains, is capable of performing a rear guard action as well. This is particularly true in certain sections of New York and Pennsylvania where the natural gas supply from two fields is showing signs of petering out.

The town of Camden, N. Y., recently mentioned as gradually changing over from natural to LPG, is one of a number of examples. As the local gas company was unable to maintain its send-out during the winter peak, enough consumers were eased off onto propane service to bring the domestic demand for natural gas within reach of the available supply.

Industrial and commercial installations in the same territory are falling back onto either standby or complete change-over as the natural gas shortage becomes more imminent. Two big installations of the Corning Glass Works, one at Corning, N. Y., and one at Wellsboro, Pa.; the Onendaga Potteries at Syracuse, and others that are still in the planning stage, all are able to switch from natural gas to LPG without interruption of service.

All of which are merely straws in the wind, indicating that a closer understanding and closer cooperation between all branches of the gas industry, manufactured, natural or liquid, are not only logical but, by the nature of events, inevitable.

SPREADING OUT A wise move by the Board of Directors of the Liquefied Petroleum Gas Association makes a new membership classification available which will appeal to the smaller marketer of LPG by admitting him to sectional membership for $10 a year. No editorial selling job is needed to point out the advantages of membership in an aggressive and progressive trade association. And it should go without saying that any association to truly represent its industry should represent a cross section of the entire industry.

The problems of selling LPG aren't all on the shoulders of the brass hats at the head of the parade. The buck private in the rear

rank is up against the same problems, and he probably needs a lot more assistance from his organization than the men out in front.

The Eastern Section of the Association, under the chairmanship of Wm. L. Hauck, is planning a membership drive to take fullest advantage of the latitude that the new membership classification makes possible. Such a drive, if successful, should go far toward pointing out to the national body the advantages of resting its activities on the broadest possible membership base.

CONSIDER THE LPG INDUSTRY

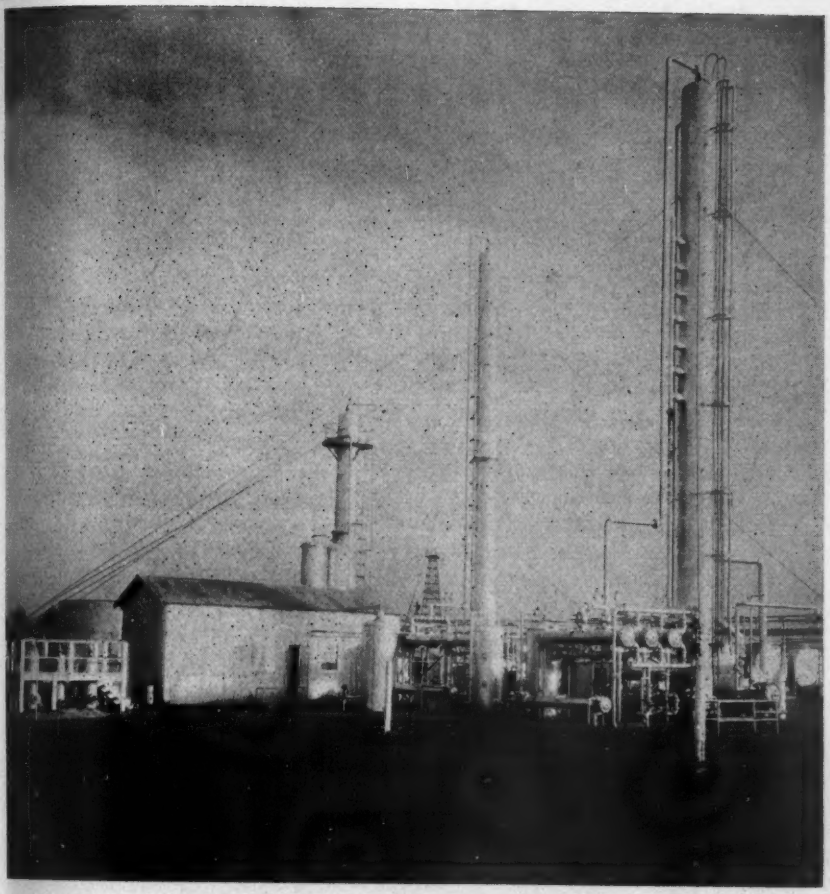
To the frenzied social planners who contend that the last frontier of American opportunity has been crossed, and that there no longer exists a field in which the individual can start at the bottom, establish himself in business of his own, and advance to heights and at a speed commensurate with his own ability, we recommend a consideration of the LPG industry.

It is common within any industry to speak slightingly of shoestring operators. Yet when these very shoestringers do rise to the top, no achievement is hailed with greater enthusiasm than theirs. Lack of sufficient capital is often enough a serious detriment to any business venture, but character and courage are assets that can accomplish miracles.

LPG is a young industry—too young to have a background of any tradition. Yet, it is essentially a service industry, and the tradition which it builds around itself as the years go by will be a reflection of the character and courage of those who even today are but pioneers. We venture the prediction that it will be a good tradition; for in it will be incorporated the rugged, realistic honesty that is characteristic of the men who are willing to risk striking out on their own, and for themselves.

The possible domestic market for LPG is said to be less than five per cent saturated. That means that the surface has hardly been scratched. Certainly there is need for more dealers and more distributors—by the thousands—if the benefits of gas service beyond the mains are to be brought to those who today have not even heard of liquid gas.

We salute the newcomers to the industry. Naturally enough they are primarily concerned with their own fortunes. But unwittingly they are demonstrating fundamental truths—that private initiative does have its opportunity, that our economic system does offer new worlds to conquer and that neither big business nor bureaucratic regimentation is the sole repository of America's continued welfare.



WHERE LIQUEFIED PETROLEUM GASES ARE MADE

Equipment at the Grisso gasoline plant of the Carter Oil Co., Tulsa, Okla., where, with the fractionating towers shown, it is possible to make propane, butane and 11 to 26-70 grades simultaneously, and with pressure and temperature changes to make motor fuel. Calcium chloride propane and butane driers are shown at the extreme left of treating house. The potential capacity of Carter Oil Co.'s present manufacturing facilities is a million gallons monthly, and shipments are made to dealers in 14 states extending from the Canadian border to the Gulf Coast and southern Atlantic states. The company also maintains loading rack facilities at its Oklahoma plants for servicing tank trucks of dealers who pick up their supply.

At Brainerd, Minn.— The Changeover to Propane-Air Gas

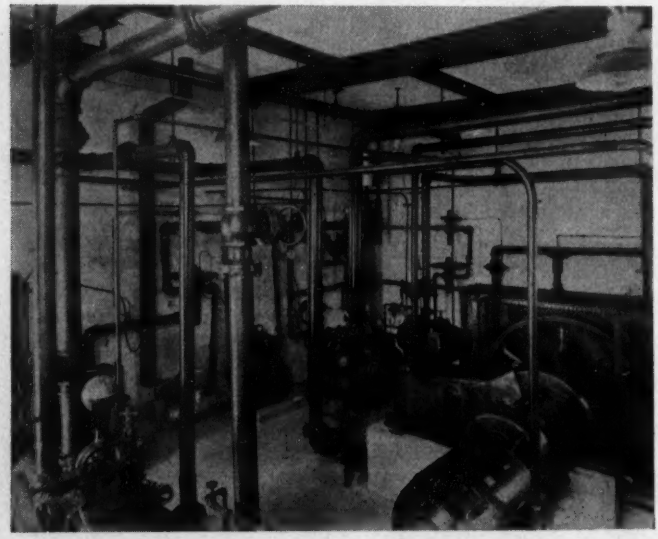
By ROBERT L. RUNDORFF

Assistant Gas Engineer, Northern States Power Company

THE manufactured gas system at Brainerd, Minn., consisted of a plant having a 4-ft. three shell water gas set with the necessary condensing, scrubbing and purification equipment. The finished water gas of 520 B.t.u. was compressed and stored in six horizontal cylindrical pressure tanks of 10,000 cu. ft. capacity each at 100 lbs. per sq. in. Finished gas was distributed through a medium pressure system to 1170 customers at 2 lbs. per sq. in., each service being equipped with an individual service regulator set at 4 in. water column.

A change from this carbureted water gas to propane-air gas of the same B.t.u. required changes in the plant and conversion of customers' equipment as follows:

Construction to produce 520 B.t.u. propane-air gas consisted of a propane storage tank, necessary liquid and vapor regulators, heat exchangers or vaporizers, mixing valves and check valves with the necessary automatic controls and piping, and is a standard installation. Finished gas is delivered to the suction side of the compressors which store the gas at 50 lbs. per sq. in. A safeguard is provided in a second compressor set to operate if the first compressor fails to start. If



Compressor room, showing vaporizing, regulating and mixing equipment.

neither compressor starts, there is an alarm system to give notice of such failure. There is a steam driven compressor that can be operated in case of an extended electric outage. There was no change in the distribution system except that distribution pressures were increased to 3 lbs. per sq. in.

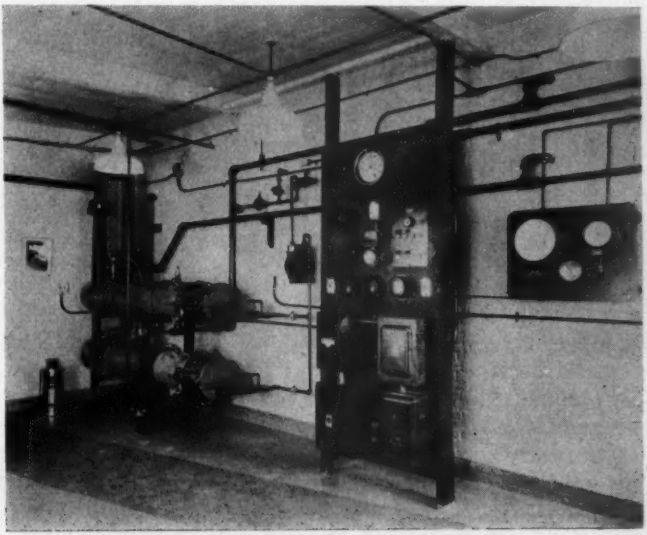
All of the old gas-making equipment was removed.

The information available on a changeover of this sort was that drilling of burner ports should be completed previous to the serving of propane-air gas, and that changing of orifice caps to the velocity reducing caps could not be done until after the new gas was available. This has resulted in the need for high pressure work by the conversion crew when the new gas was available in order to give the customer one or two burners that could be used. There have also been numerous complaints during the actual conversion, and some hazard due to the difficulty of lighting burners not equipped with velocity reducing spuds.

Upon analysis, it was felt that there was a combination of velocity reducing orifices and flame adjustments that would give the customer passable service on water gas as well as on propane-air gas until such time as the conversion men could make final adjustments on all appliances. With this to work to, experiments were begun on representative equipment to determine what would be necessary to accomplish such an adjustment.

Preliminary Test

Sample velocity reducing caps, as obtained from equipment manufacturers, were used to test the representative equipment. With these velocity reducing caps it was impossible to get a clean, soft, high flame on water gas, so that when propane-air gas was turned on the resultant flame was too low and hard to light. By shortening the standard velocity reducing cap, having a ¼ in. velocity reducing channel, it was possible to produce almost any type of flame



The control room, showing switchboard and heater for vaporizing the propane.

with water gas. It was found that with a 3/16 in. velocity reducing channel, it was possible to adjust to a clean soft flame (just off the yellow) approximately 50% higher than normal with the air shutter about one-half open on water gas. Although high, this flame had a good turn-down and would give satisfactory service on turn-down. When propane-air gas was supplied to burners with this adjustment the resultant flame was 80% to 90% of normal height but in good adjustment and could be readily lighted. To adjust to the proper propane-air gas flame it was only necessary to increase the gas to the burner slightly and adjust the primary air.

This idea of a 50% higher and very soft flame was tried out on all the equipment available and the results when propane-air gas was put on the burners without changing any adjustments were so satisfactory from a test standpoint that it was decided to change over the town so that all burner ports would be drilled, all orifices replaced with the velocity reducing type and all special burners changed on the first round. When this round was completed service of propane-air gas would begin and the conversion men would make another call on all customers to adjust burners to the proper B.t.u. input and proper flame.

Survey

A survey of all commercial and industrial customers, including doctors and dentists, was made and the gas equipment in use tabulated. This information was then used for ordering necessary conversion materials for this group of customers. A survey of approximately 20% of the domestic customers was also made and was used as a basis for ordering materials for all domestic customers. This survey of domestic customers proved to be fairly representative, and since the material was more or less universal in nature, it was possible to carry out the changeover without issuing the material for each customer separately.

Adjustments

The crews were started out on the first adjustment round on October 2, 1939, and completed this round on November 5, 1939. The commercial customers were left to the last of this period so that their equipment had an adjustment approximately 50% above normal, and with a very soft flame for a very short time. The larger restaurants were adjusted on the last two days of the first period. During the last week of the first period, all automatic storage water heater burners, Electrolux burners and oil burner gas pilots were changed by two or three experienced conversion men. The lodges and churches having gas equipment were held over until propane-air gas was turned into the mains, although a few of them were adjusted during the last day or two of the first round in order to keep all of the crew busy.

When propane-air gas was turned into the mains at 8:30 A.M., November 6, 1939, we had a conversion man stationed at each of the larger restaurants. It was an easy matter for them to tell when the propane-air gas was at the burner for the burner flames which were approximately 50% higher than normal and very soft receded to 80% to 90% of normal and be-

came slightly hard. After minor adjustments they proceeded to check other restaurants and the larger commercial customers. After completion of this first check of the restaurants and commercial customers and during the waiting period for the B.t.u. of the propane-air gas to even out, the crew worked on the adjustment of equipment in lodges and churches, and on a few pieces of special equipment that could not be worked until the new gas was in the mains.

The B.t.u. was watched closely and on the third day the gas was considered uniform enough to go ahead with a recheck of all appliances. After completion of the recheck of commercial customers, all domestic customers' equipment was checked and readjusted where necessary, and all automatic water heaters and Electrolux refrigerators were checked.

The second adjustment round was completed on November 29, 1939, with only three of the crew continued on the job for a week to clean up the loose ends and to recheck the larger restaurants.

A relatively small number of complaints resulted from these operations. Undoubtedly there were some adjustments made by the conversion men that were not according to their instructions, and it is felt that if all adjustments had been made similar to the test adjustments even fewer complaints would have been received. It is believed, however, that the change-over at Brainerd was carried on with the least possible inconvenience to the customer, that on the whole the gas equipment throughout the town was left in first class condition and that the methods used were new and proved to be successful.

General view of the gas plant and storage tanks at Brainerd, Minn.

By
ROBERT E.
PATRICK

The G. S. Blodgett Co., Inc.,
Burlington, Vermont

The Muncy Lunch Room at Essex Junction, Vt., by the use of bottled gas and a baking and roasting oven, has been able to give better service with a reduced overhead.

Twenty Pies--
And a Pudding or Two

EVERYWHERE small restaurant operators more and more are deciding to do their own baking instead of buying from professionals. Not only is it often more profitable but what is more important, it brings a vital phase of their business under their control.

A survey conducted by the American Restaurant Magazine recently showed over 80% of restaurants in the United States doing their own baking. The reason most frequently given was control of ingredients, and thus control over finished products.

It is being recognized too that not only are baked goods very profitable in themselves but that also many times a restaurant builds up a reputation and clientele around a distinctive pastry or desert due to its extra quality and tastiness. Today with modern combination ovens, roasting requirements can also be better and more profitably handled along with baking.

To the aid of these small operators located in outlying districts come two valuable helpers—liquefied petroleum gases and the modern greatly improved baking and roasting ovens. Too often the dealer neglects this highly profitable commercial cooking load and too often he neglects the small operator because of appearance or size.

At Essex Junction, Vermont, a town of 1600 people, there is an interesting example of this fuel and these modern ovens used by a very small restaurant operator, one which perhaps some dealers would pass up as being too small to be interested in a bake oven. Muncy's Lunch, operated by Mrs. Abbot Muncy, recently installed a B2-15 Blodgett oven, man-

ufactured by the G. S. Blodgett Co., Inc., Burlington, Vt. for operation on liquefied petroleum gas. There is no better way of bringing out the benefits derived from this installation than to quote her letter of recent date:

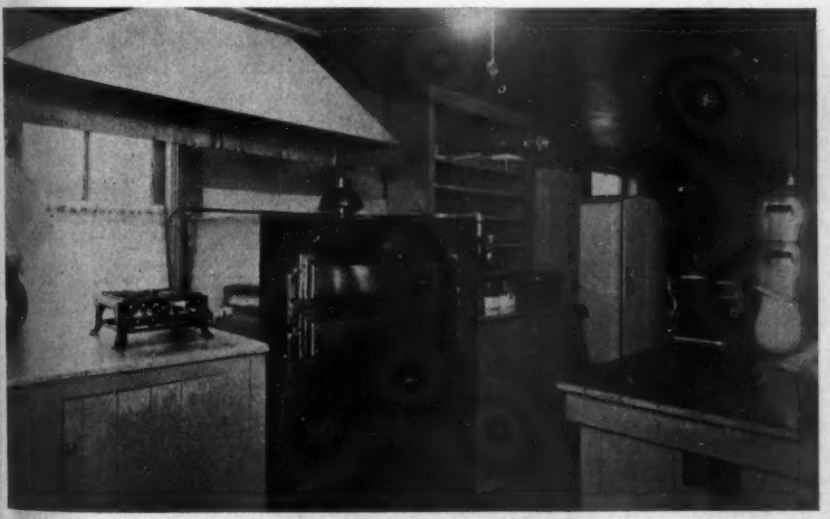
"I got along without my Blodgett oven for a number of years, but I don't see how I managed because it saves so much of my time.

"Instead of making up pies all morning and baking two or three at a time, I now make up 15 or 20 and bake them all at once in about 40 minutes. There is plenty of time left to make a cake or two, perhaps a special pudding, and sometimes three or four dozen muffins. Then each morning I put at least one 12 to 15 lb. beef, lamb or pork roast in my oven, and every Sunday a couple of chicken pies. In three or four hours all my baking and roasting for the day is done.

"I am also using a two-burner grill and four open top burners for short order work and a giant burner for doughnut frying. Later I am planning upon buying a gas coffee urn and gas water heater, I like this fuel so well. I have been pleasantly surprised at the low operating cost of bottled gas."

So that other restaurant operators may compare Mrs. Muncy's experience with their own, it is of value to note that she has a seating capacity of 24 and serves an average of 50 meals per day. A special run of 164 pies that Mrs. Muncy made up for a local fair was baked in 12 hours in this oven with 12 lbs. of gas consumed. On holidays she roasts three 15 to 18 lb. turkeys at one time. Her average daily gas consumption is 9 to 12 lbs. of gas. It is clear she could even treble her baking and roasting without more equipment.

Mrs. Muncy's experience is good evidence that even the very small restaurant or bakery can operate on liquefied petroleum gases with ease and economy, thereby placing itself on a fully competitive basis with others who are located on city mains.



Mrs. Abbot Muncy has solved her baking problems with a new LPG oven.

A Brooder That "Mothers" Its Chicks

By H. N. HOAGLUND

Vice President Worthington Gas Co., Worthington, Minn.

TODAY when most people think of the domestic market for bottled gas, they picture a modern gas range in the kitchen, a gas hot water heater, and a refrigerator. To them this constitutes the potential volume for bottled gas sales. Few of them look any further.

However, in many parts of the United States, such as New England, the Middle West, and the West Coast, there are thousands of bottled gas sets placed outside of poultry houses, connected to a modern, efficient gas brooder. This brooder is just as much of an improvement over the old brooding methods in the poultry industry, as the new, modern gas cooking range is an improvement over the old wood or coal range.

With the proper type of brooder, brooding with gas is more economical than with other types of fuel. It produces healthier, more vigorous birds, and does the job with no fire hazard, no worry about temperature control, and less labor than any other type of brooder on the market. Moreover, from a load building standpoint the gas brooder is an ideal appliance, because it consumes a relatively large volume of gas, in a comparatively short space of time.

In the early days, when the poultry man had little knowledge of the finer points of brooding, he simply put an oil or coal stove in a room, and heated the room. He found that the chicks would grow that way, and he didn't lose very many, so he kept on with this method of brooding. Consequently, it became the general idea that a hot room was absolutely necessary, because no one had ever tried to brood any other way, except the old hen, but they didn't give much thought to her. Yet, the hen has a much better system of brooding, than the hot-room method. She merely provides a warm place for the chickens to go when they are cold, and from the heat of her body, they receive an even growth and development.

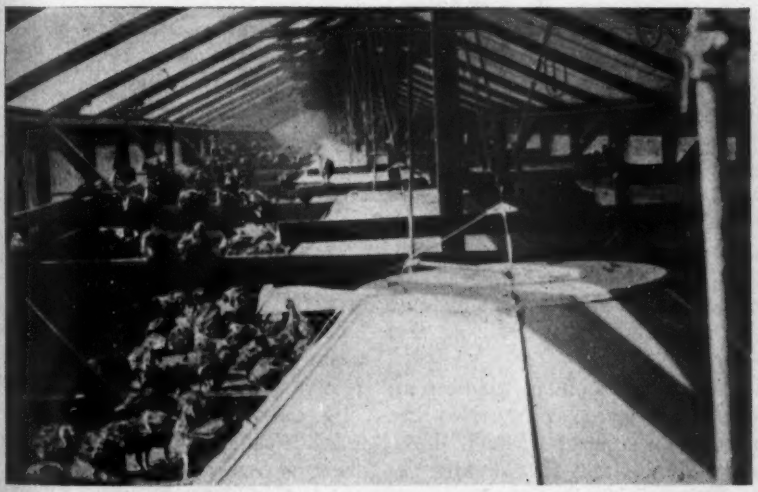
With the increase in the distribution of natural gas, poultry men conceived the idea of using gas for brooding fuel, because it was economical, and was easily available, and eliminated the necessity of handling oil or coal. All the early gas brooders heated the room, and in that respect were similar to oil and coal ones.

About 1926 and 1927 a manufacturing firm, the A. R. Wood Manufacturing Co., in Santa Cruz, Calif., experimented with, and developed, a radiant type gas brooder, which was

designed, not to heat the room, but only to heat the floor under the brooder canopy. After some years of experimental work and development, this brooder was placed on the market, and during the last several years has become widely used in many parts of the country. The radiant gas brooder was first tried out in the New England states, about 1932 or 1933, and was found to give excellent results on comparative tests with other kinds of brooders. Also, the gas brooder proved to have many other advantages, such as, simplicity of operation, dependability of fuel supply, and perfect temperature control.

Some years ago an executive of our company saw a great many of these Wood brooders brooding turkeys on the West Coast. He was impressed by the possibility of their use in Minnesota, and had a number shipped back to try out in our climate. We put some out with poultry men, and some out with turkey growers, and we were very much gratified by the excellent results which we obtained with them. After the growers had once used them, they said they wondered how they ever got along before. This year we have purchased a great number of gas brooders, and many of them have been in use during the cold winter months, giving as satisfactory results as they do in warmer weather.

From our observation, and the experiences we have had with this new gas appliance, we are convinced that the gas brooder is here to stay, and that within the next few years, it will replace thousands of oil and coal brooders. For those dealers handling bottled gas, in sections where chickens and turkeys are grown on a large scale, I believe there is a tremendous potential gas load, once they get their customers started to brood with gas.



The healthy product of butane-fueled brooders.

Sell Heating *Right*

By MANOR DALE LA BATT

Liquefied Gas Division, Tennessee Enamel Manufacturing Co., Nashville, Tennessee

THE liquefied petroleum gas industry has been blessed, apparently, with two simultaneous developments. One has been an apparent eastward swing from California spreading gradually through the southern states. This has introduced to the public the use of large bulk storage systems, either below or above-ground types, having capacities sufficient to perform all of the gas duties, such as cooking, refrigerating, water heating and house heating.

M. D. LA BATT

Naturally, fuel purchased in bulk for these systems is supplied to consumers at prices that make heating costs approximately the same as coal. The minimum season's average domestic heating load is accepted as the equivalent of an entire year's average load for cooking, water heating and refrigeration.

The other development has been an apparent westward swing from the North Atlantic states through Ohio, Indiana, Illinois and Iowa. This development, principally, has been confined to the use of small containers, with a capacity sufficiently large to satisfy the demands for domestic cooking, water heating and refrigeration; but distribution, fuel costs and limited capacities of the systems often make space or direct heating expensive.

Each section of this new industry now is in the process of extending exploring fingers into the territory of the other. A final analysis will disclose that the permanent fusion of these two has resulted in a decisive benefit to the entire industry. Each branch of the industry can learn much of value from the other.

House heating with liquefied petroleum gas as a fuel is dependent, of course, on cost of operation. Rapid developments and changes in the industry have brought about an entirely new and optimistic attitude toward house heating.

Knowledge Is Essential

The dealer, who wishes to keep pace with this rapidly growing industry, should recognize that he must: "*sell heating right.*" A certain dealer who was describing to friends in glowing terms the success he was having, discovered, a year later, that the service calls and replacements on the heating equipment he had sold had more than eaten up the profits of his original sales.

Know what you are selling, why you are selling it and how to sell it. Satisfactory heating must, of necessity, show economy through modern high-grade equipment. Though not necessarily expensive, this equipment should be properly vented, except for auxiliary heating units which receive only periodic or occasional use.

Within the past year, manufacturers of heating equipment have made available to dealers the very finest heating units yet offered, either with or without automatic thermostat control. These heating units come in a wide range of styles and capacities to meet every demand. There is a definite trend away from that type of heating which fails to provide for the elimination of *excess moisture* and *unburned gases.*

Manufacturers' representatives often are available for educational sales meetings, and through cooperation with them, it is easy to properly train your sales organization to "sell heating right."

Failure on the part of LPG dealers to properly equip themselves to know all the right answers on a heating installation, will, of course, force or divert this business into other channels. Failure to "sell heating right," neglecting to provide the proper equipment and correct installation, inflicts an original injustice on the purchaser, which surely will be retroactive to some dealer, in that he will find it necessary to trade back unsatisfactory equipment which surely cannot be placed in the profit column. The alert dealer cannot fail to recognize the virgin heating field for good equipment now existing in the thousands of homes already served with liquefied petroleum gas.

Knowledge Justifies Quality

The dealer, who sells a heating installation on a low-priced basis with an improper heating survey, may not be making an improper and inadequate installation with deliberate intent, but simply through lack of knowledge.

This type of dealer, naturally, will not retain the same interest in an installation sold with a lack of knowledge, a short profit and to a customer who develops into a complainer as the result, as would a dealer who had acted with full knowledge and appreciation of the needs of his customer. The customer, who deliberately or inadverdently has been made the victim of an improper and inadequate liquefied petroleum gas installation, eventually will seek out the dealer who knows what he is selling, why he is selling it, how to sell it and who is "selling heating right."

Annual L. P. G. A. Meeting at *Cincinnati*

● **J. WOODWARD MARTIN, Lone Star Gas Co., Dallas, Texas, was reelected president of the Liquefied Petroleum Gas Association by the directors the closing day of the three-day conference held in Cincinnati, Feb. 26, 27 and 28. W. A. Naumer, of the Carbide and Carbon Chemicals Corp., New York, was reelected first vice president and B. D. Geroy, Illinois Bottled Gas Co., Chicago, was elected second vice president. Frank Fetherston was reelected secretary-treasurer of the organization. In electing Mr. Martin for the second time to head up the affairs of the organization, members of the board of directors praised his work and urged him to accept the post again to carry out the projects legislated during his regime.**

By CRAIG ESPY

THE ninth annual convention and exhibit of appliances and equipment of the Liquefied Petroleum Gas Association was held in Cincinnati Feb. 26-28. The first two days were devoted to papers delivered by members of the Association, the annual board meeting and committee reports, followed by the usual banquet.

The organization voted directorships to the following companies. Class A: Phillips Petroleum Co.; Skelgas; Standard Oil Co. of California; Carbide and Carbon Chemicals Corp.; Shell Oil Co., Inc.; Barnsdall Oil Co. Class B-1: The Verkamp Corp.; Lone Star Gas Co.; Illinois Bottled Gas Co. Class B-2: Atlantic States Gas Co., Inc.; Hydro-Gas Co.; American Gas Service Co. Class C: Pressed Steel Tank Co. Class D: Hamler Boiler & Tank Mfg. Co. Class E: The Bastian-Blessing Co. Class F: Tappan Stove Co.

One of the significant developments coming out of the conference was the changing of the By-Laws to the Constitution to provide for a $10 sectional membership for companies with a gross income of $12,500 or less. This divides in half the former minimum requirement for membership and will have the tendency to attract new members to the organization, it is thought.

Two hundred and thirty people registered at the conference, including the dealers of The Verkamp

The climax of the ninth annual convention of the Liquefied Petroleum Gas Association, Inc., was the banquet. Officers of the Association and speakers of the occasion may be seen at the elevated tables in the right rear.

Corp., the host company which combined its dealer meeting with the conference sessions. Sixty-five dealers of the organization attended. The new models of appliances handled by the company were introduced to the dealers in a separate meeting held on the first morning of the conference. Richard Verkamp had charge of this meeting and demonstration.

Walter F. Verkamp was chairman of the program committee of the convention. Richard Verkamp, L. W. Johnson, American Gas Service Co.; W. A. Naumer, Carbide and Carbon Chemicals Corp., and S. C. Bernhardt, Estate Stove Co., served with Mr. Verkamp on the committee.

Although the convention did not officially end until noon on Feb. 28, many of the delegates left following the banquet held the night before, due to the fact that there were no formal meetings scheduled the following day. The closing morning session was given over to inspection of exhibits.

The conference officially opened on Monday morning with registration and inspection of exhibits. The mayor of Cincinnati, J. D. Stewart, was presented as luncheon speaker. He related many historical facts of interest about Cincinnati and gave a genuine welcome to the city. While still in the luncheon room, Gordon Mueller, Air Reduction Sales Co., gave a liquid air demonstration, showing the effect of low temperatures on various objects. Then the delegates assembled in the official meeting room, to be presided over at the first session by C. L. Parkhill, Parkhill-Wade, Los Angeles, a vice president of the organization.

George Jones, Servel, Inc., could not be present at the conference so his paper entitled, "Sales Planning—1940 Style," scheduled as the first on the program was read by Gene McDonald of the same organization. In speaking of the credit due distributing agencies in the refrigeration industry for their part in increasing sales volumes, Mr. Jones called upon the

L.P.G.A. members to defend unsubstantiated charges that present distribution methods are too costly. He placed the responsibility for decreased earning power of retail salesmen directly at the door of retail salesmen and called attention to the potential scarcity of aggressive, ambitious and well trained men. "Let's worry about making people want our product and let's quit worrying about whether they can afford to buy our product," he said. "They'll find the means to buy." He also made the suggestion that less thought be given to doing more business and more thought to building more men. "More business will follow this method," he said. He also urged the membership to get back to the old fashioned principle that everybody associated with the business is entitled to a legitimate profit.

Richard Verkamp of the Verkamp Corp., Cincinnati, read the paper of Leo T. Parker on the subject, "Liability in Accidents Caused by Gas Leaks." Speaking from the legal standpoint the paper gave actual findings of the court with regard to certain accidents. The paper brought the members face to face with their responsibility in the event of accidents.

A. G. A. Testing Urged

George G. Gebhart, sales manager, The Hotstream Heater Co., Cleveland, next gave a talk on "Merchandising Policies" in which he urged that policies be built up which will be permanently beneficial to the industry. In this he advocated the sale of A.G.A. laboratory tested appliances, better training methods, more selling helps and a departure from the dollars and cents idea in selling methods.

E. C. Sorby, The George D. Roper Corp., Rockford, Ill., gave a demonstration of "Actionized Selling." He emphasized the fact that salesmen should be paid well and trained well and pointed out that price is no determining factor in making sales. He showed the futility of price cutting by asking the question, "Who are you to say what I will buy something for?" In closing remarks he spoke of the tremendous untouched market for liquefied petroleum gas.

Membership Report

In opening the conference on the second day, J. Woodward Martin called upon Frank Fetherston to present the secretary-treasurer's report. This report covered the increase in membership to 167 company members. Mr. Fetherston's analysis of the membership revealed that 27.1% of the membership is national in interest; 21.4 interested mainly in the Eastern Section; 20.6 in the Mid-West Section; 12.4 in the Southern Section and 18.5 in the Pacific Coast Section. He pointed out that much of the work of the Association during 1939 had been done in connection with the sectional groups.

At the suggestion of Mr. Fetherston, President Martin called for general discussion on the subject of manufacturers' exhibits. Some felt that exhibits should be held less frequently as a protection to manufacturers. Others held the opposite viewpoint. No definite action was taken but the general sentiment seemed to be to let the manufacturers themselves govern or regulate the times that they ex-

hibit. A capacity number, 27 in all, exhibited at the current meeting.

The guest speaker at the luncheon on the second day was Milton Bacon, author, lecturer and commentator. G. M. Rohde, Ruud Mfg. Co., Pittsburgh, followed him, in the regular assembly hall, with a talk on "Automatic Water Heating in the Rural Home." He showed that the first objective in selling automatic hot water heating is to sell yourself on the advantages of this form of service. Then sell yourself that gas is the proper fuel to provide this hot water service. You then have an unbeatable combination for selling automatic hot water heating to home owners, he inferred. He also dealt with buying motives and demonstrated the use of the hot water recording thermometer by which the automatic hot water heater salesman can show the housewife whether her hot water at the spigot comes within the safety zone of 130 to 150 degrees, the temperature designated to give health protection.

Industry Should Sell As a Group

L. W. Johnson, American Gas Service Co., Pittsburgh, a member of the program committee, spoke on "Destructive vs. Creative Selling." He stated that he had suggested this subject and the assignment had passed around the country and finally dropped in his lap by the chairman of the committee. He stated that there had been too much destructive selling taking place in the industry as represented by the members of the industry fighting among themselves. He advocated just the opposite of this, namely, that the industry sell as a group.

H. Emerson Thomas, Phillips Petroleum Co., New York, in reporting on "Regulations," pictured for the audience the behind-the-scenes work of the 18 men from all areas of the industry engaged in the regulations committee work of the Association. He first told why the industry needed to regulate itself and then how the committee was going about the problem in coordination with the various regulatory bodies. The committee, with other regulatory bodies, is trying to help formulate rules that are safe and not burdensome, he stated.

Gives Cutting Demonstration

Matthew Wigton, The Bastian-Blessing Co., Chicago, in a paper entitled "Propane for Cutting," pointed out the superiority of liquefied petroleum gases over other fuels for the cutting process. His paper gave direct comparisons between cutting with acetylene and with propane and showed the advantages of the latter in better performance and savings to be made. At the close of the meeting Mr. Wigton gave a demonstration of propane cutting in the engine room.

C. L. Parkhill, Parkhill-Wade, appeared as the last speaker of the conference, his talk having been deferred from the previous day. The subject of the address was the "Cavalcade of Liquefied Petroleum Gases." In the paper Mr. Parkhill discussed the technical progress of the liquefied petroleum gas industry. He showed how new application for the fuel and new developments were increasing the market for the fuel. Slides which he showed illustrated the source of the fuel and remarkable growth of sales.

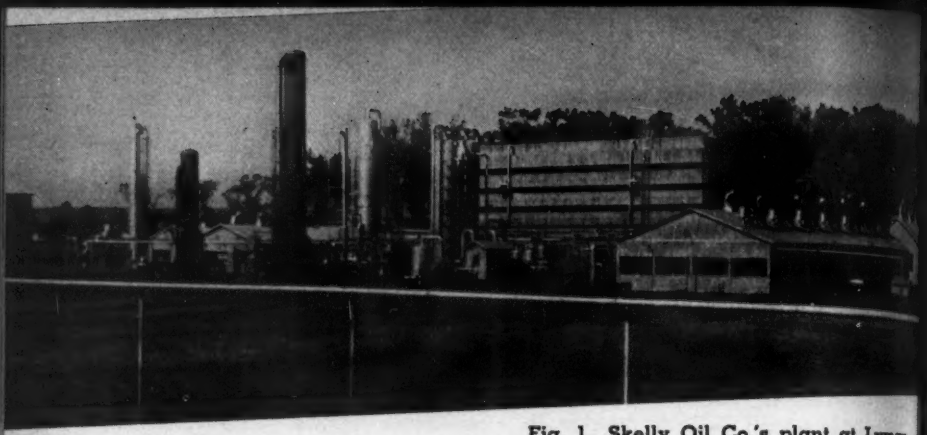


Fig. 1. Skelly Oil Co.'s plant at Lyman, Okla., where natural gas is fractionated.

Where Butane and Propane are Produced

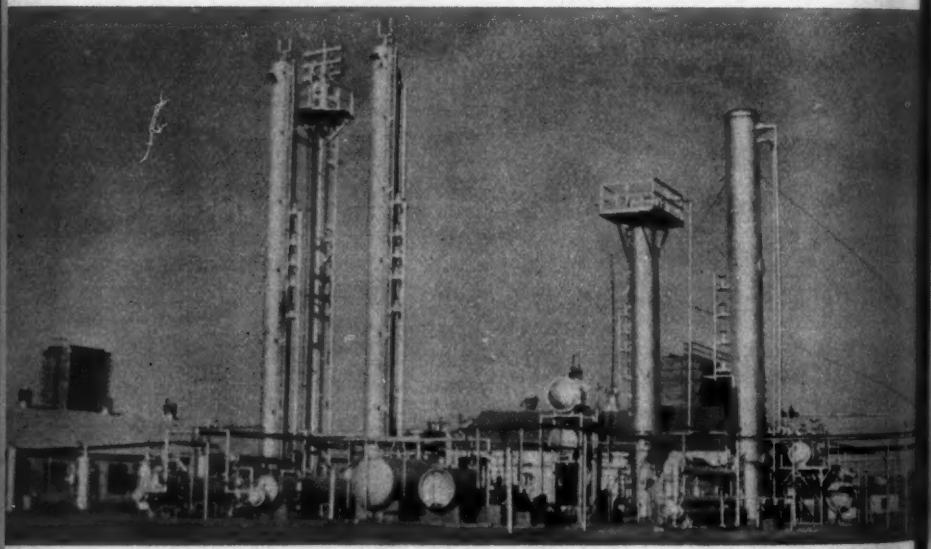


Fig. 2. Fractionating columns operating in series with each other.

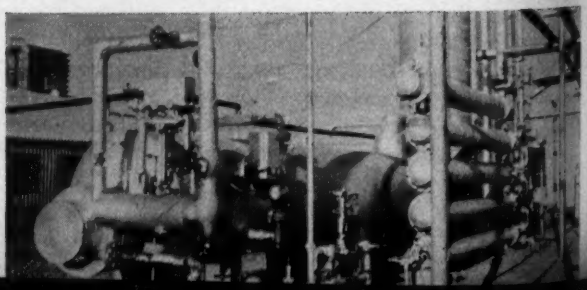


Fig. 3. Reboiler, instruments and preheating bank of exchangers.

Separating L. P. Gases Into Pure Components

By J. C. ALBRIGHT

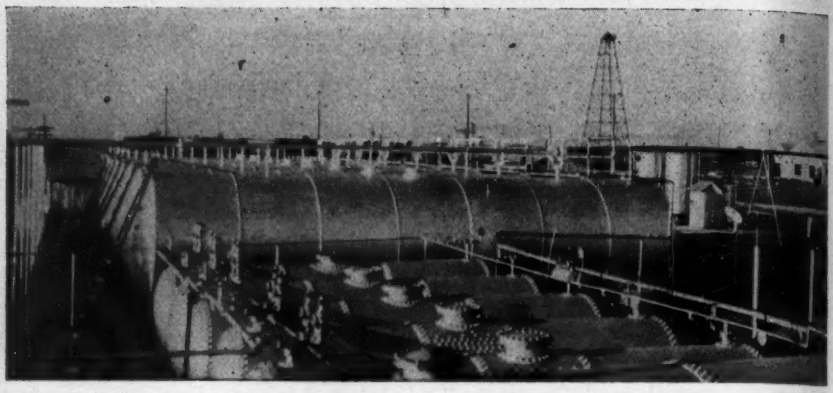
SO that the liquefied product of natural gas may be separated into pure component parts, it is obvious that several fractionating columns should be operated in series with each other. Skelly Oil Company has developed such a system of close fractionation in its special products plant at Lyman, Oklahoma, in which many different fractions are produced, some of which are manufactured to meet the specifications of the United States Pharmacopoeia, which are shipped frequently in containers holding as little as one quart.

This special products plant has a daily capacity of above 100,000 gals. of raw liquid condensate from natural gas containing all the components from the lowest boiling fraction, propane, to the highest fraction recovered from the natural gas. When producing this raw charge, the latest methods of absorption, compression and refrigeration are employed so that no marketable fraction will be lost. Several hundred wells are connected to four separate individual plants which handle their alloted volume of gases. In all of these plants, Fig. 1, special efforts are made so that no propane will be vented with the residue gas, and that a minimum amount of ethane and methane will be included in the liquefied portion of the product.

A system of pipe lines connects the several plants with the special products plant, operating continuously and each discharging its liquefied product in the line simultaneously so that a common blend will be obtained. Thus, a constant composition product is available as a charge to the special products plant where the many different classes of materials are produced.

The special products plant, Fig. 2, is equipped with seven bubble plate columns, arranged in series for the most part, so that the raw liquid will pass from one column to the other as each column removes a certain component. In the initial column, the raw product of the several field plants is charged in constant volume under constant operating conditions, so that, if required, the charge may be separated into a base product of natural gasoline meeting certain specifications, such as a 10, 16, 20 or 26 lb. product, as the case may be. In routine operation, however, the charge is depropanized, removing all the propane, and not removing any of the normal or isobutanes.

The initial column is equipped with a steam heated instrument controlled reboiler, set horizontally, containing the steam tubes in the lower section of the insulated shell. Five shell and tube exchangers are set beside this column, four of which exchange heat to the cold charge from the base prod-



Type of storage vessels used to receive special products of liquefied petroleum gas at Lyman, Okla. Propane and butane storage in foreground.

uct of the second column in the series. The fifth exchanger is a preheating unit which maintains a constant temperature on the charge as it enters the column through the entrance nozzle, irrespective of the fluctuations in temperature of the material exchanging heat to the raw charge.

This preheater is an addition to the usual equipment installed with fractionating columns, Fig. 3, many others depending entirely upon exchanger heat obtained from the base product to raise the temperature to the required degrees for efficient operation. At this primary fractionator, the steam operated preheater is installed on the stack of exchangers to save room, and to place it where it will be conveniently operated. A temperature controlling instrument, with the bulb set in the column at the entrance nozzle, operates a diaphragm valve on the steam supply piping, so that the material entering the column will be of constant temperature. This part of the fractionating equipment not only enables the fractionating column to operate more efficiently, but it also removes a large part of the load from the reboiler tubes which carry steam for base temperature.

A constant volume of raw material is pumped to the first column in the series, flowing through the heat exchangers and thence through the steam operated preheater, to enter the column at the nozzle where the temperature of the column is equal to the temperature of the charge. Passage through the column is conventional, with lower boiling constituents vaporizing and attempting to flow upwards to the vapor outlet. Condenser vapors from the overhead of the column are pumped back to the top tray to control the quality and quantity of vapors released from the column. By balancing the amount of liquid pumped back as reflux with the vapors leaving, a close fractionation is obtained which results in permitting only propane and lighter vapors to escape from the column.

The material flowing back down the column and into the reboiler is trapped directly into the second column which is operated similarly with the first, except that the temperature, pressure and amount of reflux liquid varies. Butane is released from the top of this column without attempting to separate the normal from the isobutane, and the base product from the second column may be pentanes and heavier, or may contain a quantity of butane, depending upon the kind of material desired.

Order of Separation

The condensate from the first column overhead is pumped from the liquid receiver to the third column, which is utilized as a de-ethanizer; the ethane and lower boiling fractions pass from the overhead as a gas, and pure propane is removed from the base of the column. The fourth column is operated as a propane drier, which produces a material free of water vapor, and which is placed in storage preparatory to loading in cylinders as Skelgas. The fifth column in the series is operated to separate the butanes from each other when it is desired to obtain a pure normal butane for gasoline plant refrigeration, or for other purposes.

The sixth and seventh columns are operated in series with each other or each is operated as a single unit, where the charge may be any of the products recovered from the preceeding columns. These two columns are used expressly to produce a pure hydrocarbon, with the product desired condensed from the overhead vapor stream, which is controlled by a certain volume of liquid pumped back to the top. Temperatures, charge, reflux rate and overhead vapor temperatures all vary as to the material required to be condensed from the vapor stream.

The material in the base of the column is either run to pressure storage, Fig. 4, or passed to the second column. When the one column is used for fractionation, the base material is again pumped back and a separate cut made, the process being repeated until each component in the gasoline is separated as an overhead stream. The pure products thus obtained are either shipped as such, or blended with another in proper proportions to produce a specialty, not possible by straight fractionation.

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Tomlinson Super-Butane Will Build Plant in Springer, N. M.

A 10-year franchise to furnish butane gas to Springer, N. M., has been granted the Tomlinson Super-Butane Co. and the establishment of a town plant is under way. The system to be installed is what is known as the "loop and grid," using intermediate pressure gas. The size of the main line and grids of the system shall not be less than ¾-in. pipe. All main lines and pipes must be buried at least 24 in. beneath the ground surface. The bulk storage will be in underground tanks.

The franchise provides that the operating company shall carry adequate and suitable appliances for use with the gas. Also, that city offices be provided with heat at no expense to the city.

Opening rates will be $2.75 for the first 2400 cu. ft.; 80 cents per M cu. ft. for the next 2000 cu. ft.; 70 cents per M cu. ft. for the next 2000 cu. ft.; 65 cents per M cu. ft. for the next 2000 cu. ft.; 65 cents per M cu. ft. for the next 2000 cu. ft., and for all in excess of this amount the rate will be 55 cents per M cu. ft.

SELLING IS A MAN-SIZE JOB

By GEORGE A. BURRELL

President, Atlantic States Gas Company, Inc.

● **This story of the sales problems and methods of one company is but a portion of a long article by the author, and follows the one which appeared in the February issue of BUTANE-PROPANE *News* entitled "The Gas Range Dresses Up," a discussion of the relative merits of the gas range as opposed to the electric. —Editor.**

A GROUP of salesmen is like any other group of people. Some are excellent in their work, some good, some fair and some poor.

COL. G. A. BURRELL

The "stand-outs" command the utmost respect from the writer; for some of the others he mainly has sympathy. They have precipitated themselves into one of the toughest and most competitive assignments in business — door-to-door selling—and with little aptitude for their task. I suspect that in the main, the "cracker-jack" salesmen are born, or at least born with something which, with training and the necessity for making a living and an urge to "make good," blossoms into expert salesmanship.

In looking over recent sales of my own company I find that 50 per cent of the sales were made by 17 per cent of the sales staff. This classification is not as bad as Mr. Cameron's (of the Ford Co.) statement that 90 per cent of all sales are made by 25 per cent of a sales staff, but it is of the same general order. Of 250 offices of the National Cash Register Co. in the U. S. A., nine of them sell 75 per cent of the company's products. Among these nine are the large offices in New York, Chicago, Los Angeles, Boston and the like. As regards salesmen of the New York office, 30 per cent of them make 50 per cent of the sales. This company carefully selects its men and gives them a long and continuous course in selling. National Cash Register salesmen are paid a 20 per cent commission on their sales.

There is no question that a well-trained salesman of intelligence, with joy in his work, of good address, uncomplaining, active, honest, and of standing in his community is the dream of a sales manager's life. But supermen in any line of work are rare in this world, so we take salesmen as we find them, the best we can secure, and through the years, build a staff which, after much pruning serves us very well indeed.

Now, salesmen are no different than an operating staff, say, in their variety, but their defects stand out—likewise their virtues. They are always under competition with their fellows and with their quotas, and to keep in the forefront they have to make a "killing" each month. They are on their own, virtually running a one-man business, and their rewards depend mainly on their own ability, not on somebody else's. This is assuming, of course, that they handle a good product and that the usual aids of a good selling story and advertising, but mainly satisfied customers and a reputable company, back them up.

The operating staff or other salaried employes are not on as tough a spot. They regularly get their monthly stipend, not as large as that of an excellent salesman, but more than that of 75 per cent of the sales staff. While they shine not as brilliantly if they do a fine job, neither do they lack so much lustre if they do a poor one. The spotlight is not on them so mercilessly.

Sales Staff Leads the Way

The sales staff in a growing gas company is, of course, the life of the company, and a rural gas company starting at scratch works feverishly for the day when enough customers will have been secured to pay all operating and overhead expenses and make a substantial profit. The sales staff leads the way, extolling the company's products and spreading its service into every home it possibly can. Methods of making sales are many and varied. These methods are major problems in the entire industrial life of America.

The writer prefers selling both gas service and appliances direct to the consumer through his own salesmen, a method made famous by the Fuller Brush man and, of course, widely and long used by some of the biggest industrial organizations in this country. On the other hand, city gas companies mainly sell appliances through city merchandisers, hardware and furniture dealers, and department stores. But these companies have long ago saturated their cities with gas service and their new business depends upon the sale of additional appliances to old customers or the sale of more modern ones to replace old appliances, or on the growth of the city, or as suburbs of the city are extended.

Rural Problem Is Different

City gas companies are not in the position of a liquefied gas company whose problem is that of starting from scratch to build the company up to three thousand, to ten thousand, or more, customers in any selected area. Furthermore, its prospective customers, or the ones already secured, cannot slip into a dealer's store on their errands to the shopping center of a city. Rural customers are scattered over an area of some thousands of square miles, on the farms, in small towns and hamlets, and at the crossroads. The company's wares have to be brought to them more than in the case of city people. One can sell through dealers' stores in the small centers, of course, and this is frequently done but mainly as a supplement to the activities of the gas

company's exclusive salesmen. One advantage of dealer cooperation is that the gas company obtains, in a particular center, the advantage of the goodwill of long established dealers.

But it is the writer's experience that a gas company, at least with the objectives of his own company, cannot sustain the necessary sale drive for a large number of new customers per month through local merchants. They sell many different kinds of merchandise, and a gas system, stove, or water heater is just an additional item of merchandise to them.

Further, there arises the question of the split in commissions between the dealer and the company's salesman, and whose prospect a particular one is—the dealer's or the salesman's—service work to be performed by the dealer, financing or not of the dealer's stock, and other minor matters. Of course, all of these problems can be solved and are solved by some companies, but they are not always easy ones to settle satisfactorily.

Old Customers Will Help

Anyhow, the writer's company employs its own salesmen for "door-to-door" canvassing. Some company showrooms are located in strategic places, but in the main, a salesman goes out from his home each morning with his sales kit and with the support of customers to whom he has already sold the gas service in his territory to aid him.

One sales manager handles a territory of about 6500 square miles. Under him are 15 to 20 zone managers and under each zone manager, one to possibly five salesmen. They are paid on a commission basis and pay their own auto expenses. They receive 20 per cent of the selling price of an appliance, receive something for gas loads over a certain figure, and participate in monthly and four-monthly prize contests. There is always a prize contest under way. Zone managers make from almost nothing per month up to $400 per month, and salesmen, a maximum of $250.

Commissions Believed Best

Drawing accounts and salaries plus commissions are frequently given to salesmen and by big and progressive companies. How desirable this practice is and what the split should be between salaries and commissions is a moot subject and one to be decided by each company with its own peculiar problem in mind. In the writer's opinion, salaries and drawing accounts are not necessary if a company has an attractive product to sell, one for which there is a demand, and out of the sale of which a good salesman can make an earning attractive to himself by diligent work. Under these circumstances, he does not much need any further stimulant beyond his earned commissions. They will exceed a drawing account or a fixed salary. What the latter do under these circumstances is merely to keep inferior men on the payroll longer than they would otherwise last.

So-called lean months, when they occur, can be made good ones, of course, by extra efforts and inducements. One company sells more ranges in January than any other month.

Sales contests are a regular part of

the sales program of the writer's company. A regular feature of the monthly sales meetings is a so-called President's Club. This takes the form at the evening banquet of a head table at which those sales managers, zone managers, and salesmen sit who have sold the requisite amount of merchandise — made their quotas.

Banner for Sales Honors

Others sit at adjoining tables. Here also is presented the sales banner to that area which has made the most sales during the month, the banner to be retained by the area and hung in the main sales showroom of the area until it is won by some other area.

Of what value are sales contests? Well, every selling organization of consequence in this country employs them. The National Cash Register Co., one of the ace selling groups, almost makes a fetish of them. They serve the purpose of singling out the keen men of a group, and that person who does not like to see his achievements signalized is a pretty indifferent and blasé individual indeed, modest though he may be. The writer has yet to meet him. Thus prizes give the men an incentive over and above the receipt by them of their pay checks, and when the presentations are made at a group meeting, say, at a monthly dinner and in the presence of their fellows and by the officers of the company, those who do not receive the special awards, and special acclaim have a powerful incentive to become the chosen ones at the next meeting.

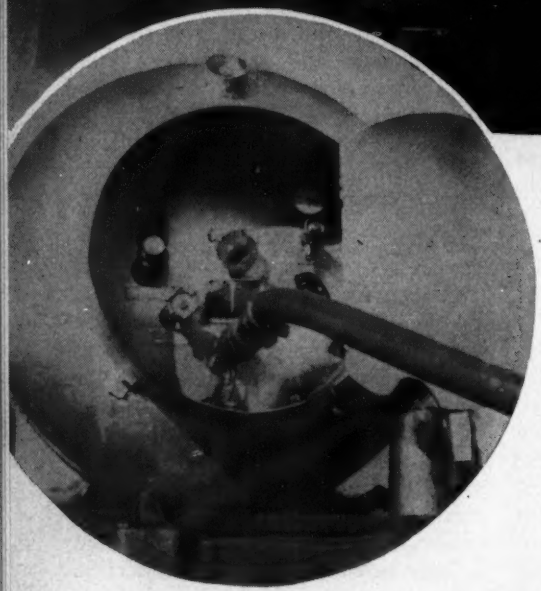
In the author's company, the operating department also participates in the President's Club and in the receipt of awards. A banner is presented for the most efficiently operated area, collectors receive an award for the best collections, installation men for the best and neatest installations, dispatchers for the smallest number of dry tanks, and service men for the best service work. Awards are made at joint meetings of the operating men and salesmen. Thus, each group appreciates the value of the other's work and the necessity of the closest cooperation and good will between the groups. This is valuable for the company and employes, alike.

Contests Yield Little Profit

The writer's company makes little profit out of its sales, but only strives to meet selling expenses or a little more. This is no easy task if all proper expenses are placed against the sales organization. Some profit can be made out of a limited number of sales, for the regular operating staff can make a few sales along with their other duties, but in a drive to make a large number of sales, considerable effort has to be expended, and funds as a consequence, over a wide territory, with advertising, booklets, exhibitions at fairs and kitchen demonstrations at the homes of customers. Much traveling must be done and long distance telephoning. Showrooms must be maintained and group meetings of salesmen.

Proper expenses against the sales staff are those for all of the above, and supervision, rent, office supplies, postage, cost of installing appliances, losses on repossessed merchandise, and a portion of the insurance and taxes.

They Now Carry Fuel to the Tractors



To economize on the tractor's time and reduce operating costs, field storage tanks for butane are established at strategic locations on the extensive Conejo ranch near Camarillo, Calif. From these, skid tanks draw supplies with which to make transfers to the tractors wherever they may be when fuel gets low. ABOVE: A 4000-gal. storage tank manufactured by the American Pipe & Steel Corp. IN CIRCLE: The dispensing connections, gages and equipment of a 500-gal. skid tank, made by the same company, servicing a tractor alongside.

AT RIGHT: The tractor, itself, with butane pressure tank and special carburetor, typical of the fleet of six now in daily operation.

Field Storage Saves Tractor's Time

FOLLOWING the trend toward liquefied petroleum gas and economy, owners of the vast Canejo Ranch, near Camarillo, Calif., recently equipped the farm's fleet of six tractors to use butane.

The ranch of 11,000 acres is owned by the Janss Investment Corp. and is the country home for several members of the family. It is typical of many large Western ranches where agriculture is a business and must be operated on an economical basis.

Many kinds of agricultural products are under cultivation on the ranch. Citrus is one of the principal crops and a large portion of the land is planted to oranges and lemons. Others are apricots, beans and hay. Also, thoroughbred race horses are raised, some of which have become famous on the racetracks of America. Best known among these are Boxthorn and Top-Row.

As the tractors on the Canejo ranch are used mostly for the cultivation of citrus trees and the several groves are widely scattered over the extended area of the ranch, a practical method of providing butane at the groves had to be arranged. To do this job engineers in charge of the work evolved a plan to give sufficient storage and convenient transportation of the gas.

At a section of the ranch known as Camp 1, a 4000-gal. tank for storage was installed. To transport butane from this storage to groves nearby, a 500-gal. skid tank was furnished. Mounted on a four wheel trailer the skid tank can be easily moved to any location, making butane quickly accessible to the tractors.

A similar system has been used at Camp 2 where a 1500-gal. permanent storage tank was installed. Working from this tank is a 330-gal. skid tank.

No More Lost Hours

The use of permanent storage tanks with auxiliary skids has solved the problem of supply for the operators of the Canejo ranch and has made butane easy to handle as well as accessible. Instead of hours lost in driving equipment long distances for gas refills, the tractors can operate whenever and wherever they are needed for as long a period as is necessary.

The butane installations on the six tractors were made by the Electric Carburetor and Engineering Co. of Los Angeles. All gas converters and mixers, manufactured by American Liquid Gas Corp. of Los Angeles, were placed on all the tractors. Three tractors are Model M Allis-Chalmers, two are Model T 40 McCormick-Deering, and one is a Model 28 Caterpillar.

Regulators and mixers used on the Canejo equipment were manufactured by the American Liquid Gas Corp. of Los Angeles. The two permanent storage tanks and the 500-gal. skid tank were built by the American Pipe and Steel Corp. of Alhambra, Calif.

SELLING

Five Easy Rules For Losing Sales

WHEN a man asks for a drink of water he doesn't expect to have the hose turned on him. Nor does the person who likes to be called by name — and which of us doesn't? — particularly relish hearing it every other word. As a matter of fact, one of the surest ways to send even the most patient of prospects screaming for the exit is to keep repeating her name over and over again like a cracked phonograph record. *You probably will not offend a customer by finding out her name and using it in moderation, but the salesmen who are really artists at getting rid of customers are*

those who begin and end every sentence with the prospect's name, and repeat it a half a dozen times between periods.

THE salesmen who seem to be the most successful at getting rid of customers are those who never stop talking. If you never give a prospect time to think, it's pretty obvious she will never have an opportunity to make up her mind. She might want to ask a question or two, or she might

just want to stand and admire the beauty of the appliance she is contemplating buying. It's up to you, therefore, to keep her from doing either of these two things. Talk, talk, talk and keep on talking! *An unbroken monologue is pretty certain to kill a sale.*

THE average woman doesn't know a B.t.u. from a syzygy and probably cares about it less. The thing she is interested in is what a given appliance can do for her: Does it give her

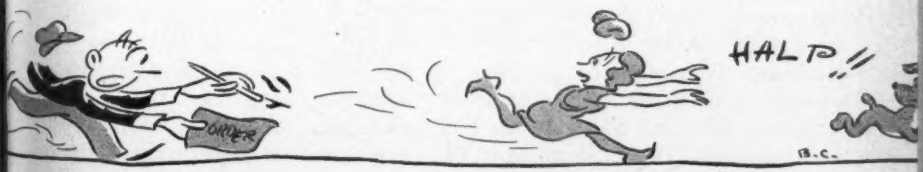
better baking results? Does it afford more hot water for her family at less cost? Does it provide adequate refrigeration? Will it furnish ample heat for her home? Performance is a thing she can understand. The number of B.t.u.'s an appliance can deliver or what sort of material is used for insulation doesn't mean a thing to her. *So be sure to make your sales presentation good and technical if you want to drive prospects away from your door.*

THE thing for which the customer is waiting is for you to ask her to buy. She may not expect you to ask it right off the bat, nor possibly does she anticipate your making the request until she has signified her need and

indicated that her mind is made up. But when she comes to that point, she looks for you to suggest buying. Thus there is no surer way of wrecking a deal and sending the customer away mad and confused than by refusing to come down to the matter of the dotted line. *You'll never make a sale if you never ask a customer to buy.*

A PROSPECT naturally likes to have her needs and desires considered. She probably has a pretty good idea what she wants before you

approach her. She will be displeased and irritated if you ignore that fact and try to keep her concentrated on a piece of merchandise she doesn't want. If she comes in to look at a water heater, try to sell her a gas range; if she is interested in gas ranges, insist on showing her your line of refrigerators. And to make yourself thoroughly obnoxious keep her away from models which seem to attract her attention. *A good way to keep from selling people is to ignore their needs and desires.*



What is Butane?

BUTANE, to the general public, is a highly volatile, colorless liquid, produced by the petroleum industry

G. N. HILE

which may be used efficiently as a motor fuel or domestically, under limited conditions, for heating and cooking. To the petroleum industry, butane is one of the long series of hydrocarbons which in the aggregate form the complicated mixture of gases and liquids recoverable from oil wells.

The heaviest of the series of hydrocarbons which are produced from an oil well are reduced through field and refinery operations to tar, waxes and greases. Next in order come the lubricating oils, the fuel oils and the gasolines. Following the gasolines is a group of products called "liquefied petroleum gas," to which group butane belongs. The final member of the series is natural gas. There are, of course, many intermediate products. However, this tabulation will serve to indicate the position of butane in the series with relation to other well known petroleum products.

The first separation of the series of hydrocarbons produced by an oil well is effected at the well itself where the fluids recovered are directed into a trap in which the gas is separated from the liquid. The hydrocarbons which go to make up liquefied petroleum gas are propane, isobutane and normal butane. Most of these products are carried out of the trap with the gas, which is subsequently treated in a natural gasoline plant for the recovery of desirable fractions. Since the bulk of the propane and butanes is delivered to the natural gasoline plant, and the bulk of liquefied petroleum gases sold is produced in con-

● **GLEN N. HILE, Technical Supervisor, Natural Gas Department, Standard Oil Co. of California, Whittier, Calif., in a paper entitled, "What Is Butane?" delivered before the February meeting of the Motor Vehicle Engineering Society in Los Angeles. Other papers and articles discussing butane as an automotive fuel and the load-building possibilities of automotive equipment will appear subsequently. Figures 1, 2 and 3 accompanying and so aptly illustrating this article, first appeared in the June, 1939, issue of BUTANE-PROPANE *News*, in "The A B C of LPG."—Ed.**

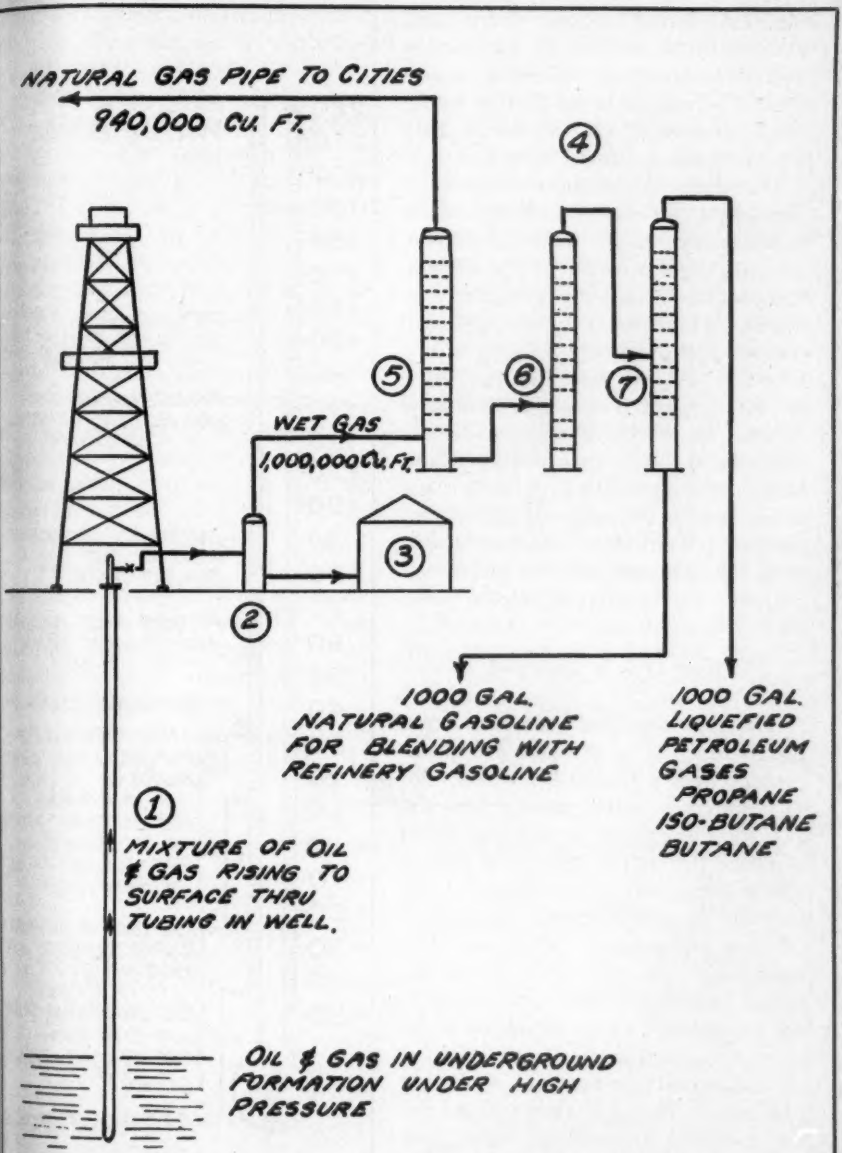

NATURAL GAS PIPE TO CITIES
940,000 CU. FT.
4
5
6
7
WET GAS
1,000,000 Cu. Ft.
3
2
1000 GAL.
NATURAL GASOLINE
FOR BLENDING WITH
REFINERY GASOLINE
1000 GAL.
LIQUEFIED
PETROLEUM
GASES
PROPANE
ISO-BUTANE
BUTANE
1
MIXTURE OF OIL
& GAS RISING TO
SURFACE THRU
TUBING IN WELL.
OIL & GAS IN UNDERGROUND
FORMATION UNDER HIGH
PRESSURE

FIG. 1.

junction with the recovery of natural gasoline, this method of production will be emphasized. There is, nevertheless, considerable production by refinery processes, and the future may see more development along this line.

Gas delivered to the natural gasoline plant, as outlined above, varies considerably in its composition depending on the origin of the oil and the conditions under which it is produced. However, a typical gas will contain approximately 1.0 gal. of butane-free natural gasoline per 1000 cu. ft. of gas, 0.9 of a gal. of normal butane, about 0.3 of a gal. of isobutane, and 1.5 gals. of propane. About half of the normal butane in this gas is desirable as a fraction of the natural gasoline. The rest of the normal butane, the isobutane and the propane is available for liquefied petroleum gases.

How LPG Is Obtained

These products are removed from the natural gas by bringing the gas in contact with a special oil, called "absorption oil." After contact with the gas, the absorption oil thus saturated is passed through a distillation process where the gasoline and liquefied petroleum gas constituents are driven off in a vapor state. These are then condensed and sent to a rectifying system, where the individual products are separated. Those which are to be converted into liquefied petroleum gas are subjected to additional rectifying processes. They are then treated for the complete removal of water and are odorized in accordance with Industrial Accident Commission rules.

The quantity of absorption oil re-

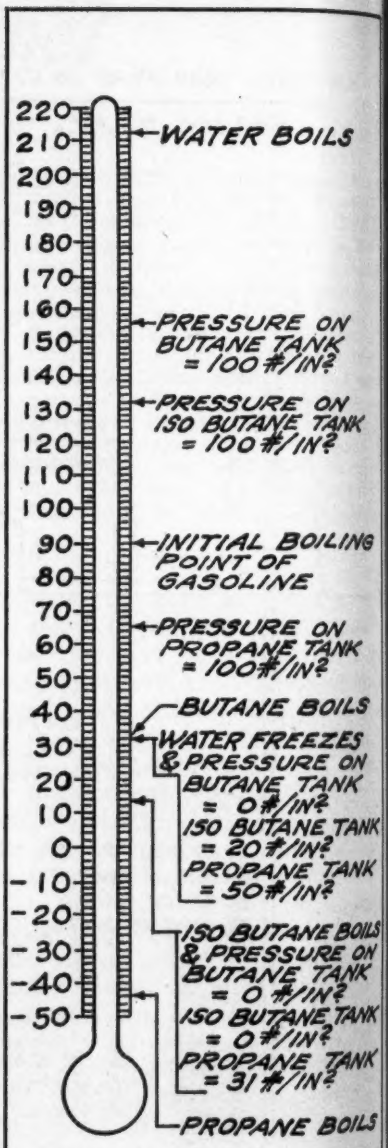


FIG. 2.

quired and the size of the plant necessary to effect the above extraction and refinement, is largely influenced, of course, by the volume of gas handled. The equipment and investment involved are also materially affected by the percentage of hydrocarbons required for liquefied petroleum gas. Operating a 100 lb. pressure for the extraction of natural gasoline only, an absorption oil circulation of about 15,000 gals. would be required for each 1,000,000 cu. ft. of gas processed. This circulation, on the basis of the typical analyses previously mentioned, would extract all of the heavy gasoline constituents and the 50% of normal butane which is desirable in natural gasoline. To increase butane extraction materially beyond that required for natural gasoline, it is necessary to increase oil circulation, and consequently the capacity of all plant equipment. To effect 98% normal butane extraction, it would be necessary to increase oil circulation from the 15,000 gals. mentioned above, to 40,000 gals. per 1,000,000 cu. ft., or more than 100%. To extract 90% of the propane in the gas, it would be necessary to increase the plant capacity to an oil circulation of 80,000 gals. per 1,000,000 cu. ft. of gas processed. These figures indicate the magnitude of the additional investment which increasing demands for liquefied petroleum gas is placing upon the oil industry.

Now, let us turn from the methods of production and consider the physical properties of the hydrocarbons which occur in liquefied petroleum gas and their relationship to the various demands. As previously mentioned, hydrocarbons occurring in commercial butane and all liquefied petroleum gases are propane, isobutane and normal butane. The physical properties of these hydrocarbons are shown in table No. 1.

In large, well equipped liquefied petroleum gas plants, the three products indicated in this table are produced in comparatively pure states. These basic products are then blended to give the properties which are most de-

TABLE NO. 1. PHYSICAL PROPERTIES LIQUEFIED PETROLEUM GASES

		Propane	*Isobutane*	*Normal Butane*
Formula		C_3H_8	C_4H_{10}	C_4H_{10}
Vapor Pressure at 100°F.	(Lbs. Ga.)	175.0	59.0	37.00
Vapor Pressure at 32°F.	(Lbs. Ga.)	55	7.0	0
Boiling Pt. at Atmospheric Press.	(°F.)	—44	+12	+32
Heating Value	(BTU/Gal.)	91,689	99,756	103,615
Heating Value	(BTU/Lb.)	21,676	21,270	21,320
Octane Number, Motor Method		99.5	97.0	90.5
Specific Gravity		.509	.564	.584
Gravity	(°API)	146.5	119.4	110.8

sirable for a specific demand. It is therefore important to consider the individual properties of each hydrocarbon in the light of the conditions of ultimate consumption. The four general uses to be discussed here are for motor fuel, for carburetion, for domestic fuel, and refinery operations.

Most Desirable Blend

Used as a motor fuel, which is customarily sold on a gallonage basis, the most desirable blend of the products shown in the table would be characterized by the maximum possible heat value in B.t.u. per gallon, the minimum vapor pressure that would assure continuous delivery to the mixing valve, and the maximum octane rating. It is obvious that pure normal butane would give the maximum heat value per gallon, the heat value advantage over isobutane being about 4%, and the advantage over propane being about 12%. It is also obvious that normal butane alone would not exert sufficient pressure to make delivery to the mixing valves under low temperature conditions. Enough of the lighter products must therefore be added to give the pressure requirements, but it should always be kept in mind that as vapor pressures go up, heat values go down. Regarding octane ratings, the lighter products have the advantage, but even normal butane has an octane rating of 90.5, and it is very doubtful if the motors fueled with liquefied petroleum gas are designed to take the full advantage of even this rating. It therefore follows that for general use the increased octane rating of propane over butane is of little advantage.

Now, regarding uses which employ carburetion: By carburetion is meant the dilution of a liquefied petroleum gas with air to give a heat value comparable with natural gas.

Carburetion is used extensively to fuel small communities which are off the natural gas mains and as standby for natural gas. In this application, the liquefied petroleum gas is drawn from the storage as a liquid and passed through some heating device which converts the liquid to a vapor. The vapor is then mixed with air. This operation is accurately controlled by automatic devices which insure a constant heat value fuel. Heat values are usually adjusted to about 1000 B.t.u. per cu. ft. by the dilution of one part of liquefied petroleum gas vapor with two parts of air. There is no explosive hazard involved in this operation, as the limits of inflammability are from 1.8% to 9.50%. That is, air-gas mixtures are inflammable only when the percentage of these gases is from 1.8 to 9.5%. Since artificial heat is available in this method of operation, and since octane number is of no consequence, and since liquefied petroleum gas for this service is sold on the gallonage basis, it follows that the lowest vapor pressure stock available is the most desirable. This is true because of the higher heating value of the lower vapor pressure product, normal butane, and because of the lower cost of handling and storing.

When we consider bottled gas service, we find the picture considerably changed. Bottled gas is sold primarily for domestic heating and cooking, and fills a very popular demand among farmers and homes that cannot be

Spring IS THE TIME TO SELL WINTER *Performance*

The past winter has been a severe one, but owners of a Hydro-Gas System, with its exclusive patented Vaporizer and Re-vaporizer, have enjoyed dependable gas service despite the low temperatures. Owners everywhere have acclaimed the superiority of Hydro-Gas, and as the result there will be many thousands of new prospects created. Further interest in Hydro-Gas Systems is being developed this Spring and Summer with one of the most aggressive advertising campaigns ever launched for a liquefied petroleum gas system.

Correspondence is welcomed from responsible prospective distributors and dealers in territories not now under franchise.

HYDRO GAS SYSTEM

SOUTHERN STEEL COMPANY

SAN ANTONIO, TEXAS

reached by the gas mains. In this application, the liquefied petroleum gas is charged into small cylinders, sizes ranging from 10 gals. to 300 gals., and is utilized in the vapor state. In other words, instead of drawing the product from the bottom of the storage as is done in motor fuel and carburetion operations, the product is drawn from the top of the container in a vapor state. When so utilized, the heat of vaporization must be supplied from the atmosphere by transfer through the walls of the vessels. This type of service dictates product characteristics entirely different from those previously discussed. First, the product must be "wild" enough to vaporize under the most severe weather conditions; second, it must be of a uniform composition so that the last portions vaporized will have materially the same characteristics as the first fractions; and third, since this product is usually sold on a weight basis, it is desirable to select the product that has the highest heat value per pound. An inspection of the table of physical properties with these factors in mind can lead only to the conclusion that pure propane is the ideal bottled gas constituent. This is rather fortunate, as it happens that propane is peculiarly easy to produce in a pure state, and as the demand for propane is otherwise rather limited. There is, however, another feature in connection with bottled gas that clouds this otherwise clear picture, and that is the cost of handling. In distributing liquefied petroleum gas in small containers, the cost of handling is materially influenced by the weight of the container, and the weight of the container is fixed by Interstate Commerce Commission regulations as a function of the vapor pressure of the product. This all means that, where weather conditions will permit, a bottled gas having a vapor pressure less than that of propane can sometimes be justified.

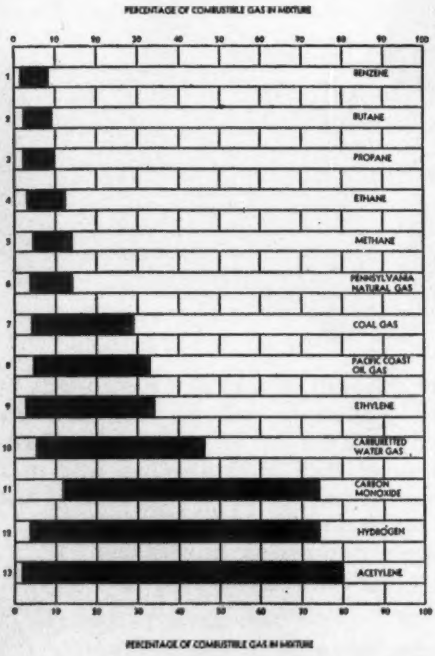
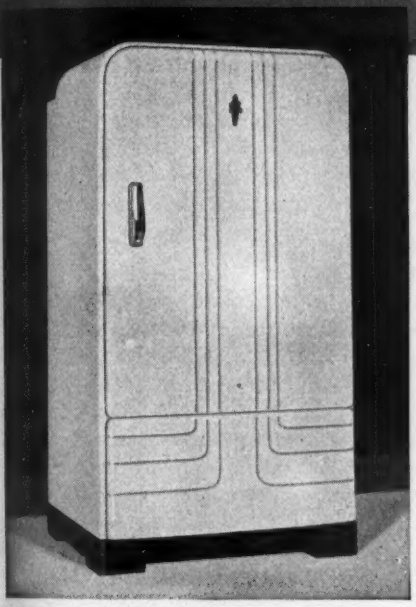


Fig. 3. Inflammability limits of gases, showing narrow explosive range of butane and propane.

New Methods Necessary

The fourth demand for liquefied petroleum gases mentioned above was refinery operation. The increasing demand for high octane fuels has forced the refiner to seek new methods of production and utilization of raw materials in order to secure this quality

Build for your future with *Gas Refrigeration!*



Servel Electrolux runs on Bottled Gas and Tank Gas

PUSHING gas refrigeration can help you build for the future of your business in several ways.

First of all, you realize an immediate and worthwhile merchandising profit from the sale of the refrigerator itself; and you benefit from the increased load.

But even more important, from the long-term view, is the fact that having gas refrigeration will make your customers want other gas appliances.

Start *now* to use gas refrigeration to help you lay a firmer foundation for your future! Servel, Inc., Evansville, Indiana.

GAS REFRIGERATION:

- **Publicizes the Modernity of Gas**
- **Protects Your Present Gas Load**
- **Stimulates the Sales of Other Gas Appliances**
- **Builds Load without Extra Investment**

The **SERVEL** **ELECTROLUX** *Gas Refrigerator*

FREEZES SILENTLY...WITH NO MOVING PARTS

in the finished gasoline. In this development work, butane and similar products are playing an important part. As these processes develop, we can expect a rapid increase in the refinery's butane requirements. It is interesting to note that the automotive industry finds a fuel available to it at a very reasonable figure which has an octane rating much sought for by the airplane industry which pays a premium for this quality.

Handling and Storing

Turning from physical properties, utilization and specifications of liquefied petroleum gas, let us consider briefly the methods of handling and storing the product. As far as physically moving a liquefied petroleum gas from storage to a truck, tank car, or cylinder is concerned, the refiner finds practically no complications. With adequate suction lines, even propane can be used with steam duplex pumps or with centrifugal pumps as readily as can water. Of course, however, the liquids must be kept under full pressure at all times. Cylinders are commonly charged by pumping the liquid into the closed vessel which is placed on a platform scale. The weight is noted as the cylinder fills up and the flow cut off at the desired point. Excess pressure is then vented off and weights adjusted. This procedure is covered in every minute detail by Bureau of Explosives regulations. Tank trucks are filled by pumping the fluid into the vessel and filling to a fixed outage. In California this procedure is regulated by the Industrial Accident Commission. Tank cars are filled in a similar manner, but the outage tubes in this case are adjustable and the tank cars are equipped to take full advantage of gravity and temperature variations. The loading of tank cars is also regulated by the Bureau of Explosives.

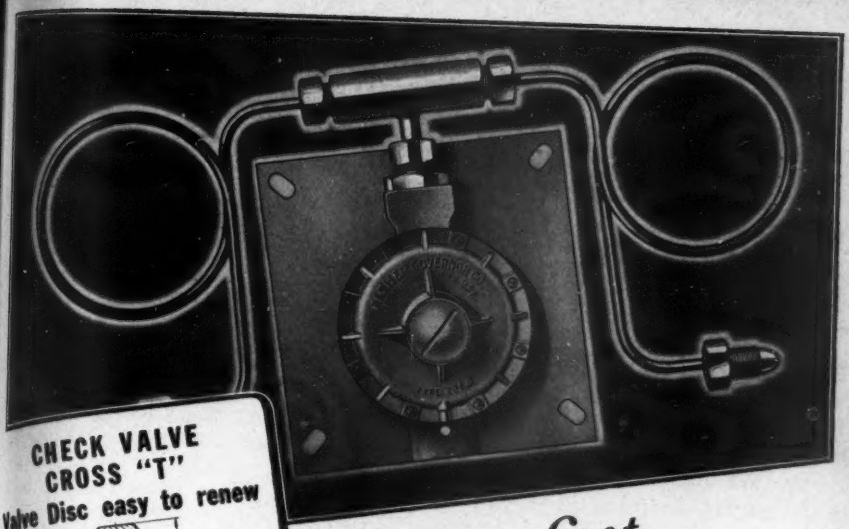
Matters pertaining to the design of motor fuel tanks, transportation tanks, and to storage tanks are covered in detail by the Liquefied Petroleum Gases Safety Orders issued by the Industrial Accident Commission of the State of California. These regulations, as they pertain to the relationship between the vapor pressure of the product and the working pressure of the vessel, are summarized in a table. This table shows the minimum design pressure of the containers for various vapor pressure stocks. A few facts of particular note brought out by this table are:

Minimum Working Pressure

The minimum permissible working pressure for transportation tanks is 125 lbs.; for motor fuel tanks, 175 lbs., and for a storage tank, 50 lbs.

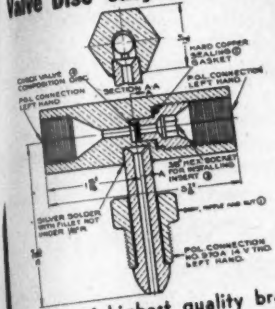
Table No. 2 gives an idea of how these minimum pressures increase with the increasing vapor pressure of the liquefied petroleum gas.

This table shows the minimum permissible working pressures for all three classes of containers when handling a 75 lb. stock. For higher vapor pressure services, the working pressures of storage tanks must be increased. Beyond 99 lbs. vapor pressure the working pressure of transportation and storage tanks must be increased, and beyond 115 lbs. the working pressure of automotive fuel tanks must be increased. The figures quoted refer to summer operations.



CHECK VALVE CROSS "T"

Valve Disc easy to renew


SECTION A-A
POL CONNECTION LEFT HAND
HARD COPPER SEALING GASKET
POL CONNECTION LEFT HAND
SILVER SOLDER WITH FILLET NOT UNDER 180°A
POL CONNECTION RIGHT HAND

Made of highest quality brass bar stock. Fitted with soft composition valve disc.

Low Cost

FISHER

TWO DRUM BOTTLE GAS REGULATOR WITH DOUBLE ACTING CHECK VALVE CROSS "T"

This FISHER Type 721X assembly for two drum installations assures superior regulation at a low cost. Main regulator for this unit is the FISHER Type 721 which has a long, powerful valve leverage, plus large sensitive diaphragm area for extremely close pressure regulation. Type 721X assembly includes a double acting Check Valve Cross "T" and two copper tubing standard length pigtail connections. POL x POL pigtails regularly furnished. When empty cylinder is removed, Check Valve automatically closes off that side of Cross "T", preventing any excessive loss of gas. Valve disc is free to move from one seat to the other as pressure is applied or removed, to either connection. If cylinder is to be left disconnected, the free end of pigtail should be capped. Type 721X is capable of handling a capacity of gas sufficient to take care of all domestic and average commercial loads.

WRITE TODAY for information and latest prices on Type 721X and other FISHER Regulators for the Liquefied Petroleum Gas Industry.

FISHER GOVERNOR COMPANY

911 FISHER BUILDING
MARSHALLTOWN, IOWA

Complete Line of Other Bottled Gas Regulators, Connections, Fittings, etc. Also Special Design Regulators for Butane Service Industrial Plants.

TABLE NO. 2. VAPOR AND WORKING PRESSURES

Vapor Pressure	*Working Pressures*		
Lbs. Sq. In. Ga. at 100°F.	*Transportation*	*Automotive Fuel*	*Storage*
75	125	175	90
99	125	175	125
115	144	175	144
200	242	294	242

The State Safety Orders permit a vapor pressure tolerance of about 30% during the months of October to March.

Here are a few figures illustrative of the magnitude and rapid growth in the consumption of liquefied petroleum gases: In 1922 the consumption in the United States was about 220,000 gals. By 1932, after just 10 years, the consumption had increased to 34,000,000 gals. The estimated total national sales figures for 1939 were 227,000,000 gals. Thus, the use of liquefied petroleum gas has gone up from 220,000 gals. to 227,000,000 gals. in 17 years.

In California, the 1932 volume was 6,000,000 gals., which, by 1939, increased to 63,400,000 gals.

Just how far this can go is hard to predict. It has been pointed out that there is a continuously widening market for these products, particularly in refinery processes. It has also been pointed out that increased production is available only through materially increasing the facilities for extraction.

This summarizes the occurrence, physical properties and utilization of liquefied petroleum gases. Those interested in going into this subject in detail will find the following references very helpful:

Bulletin TS-392, issued by the California Natural Gasoline Association, Los Angeles, Calif.

Handbook, Butane-Propane Gases, published by Western Business Papers, Inc., 1709 West 8th Street, Los Angeles, publishers of BUTANE-PROPANE *News*.

Liquefied Petroleum Gas Safety Orders, issued by the Industrial Accident Commission of the State of California.

Regulations of the National Board of Fire Underwriters, Pamphlets 58 and 59.

◆ ◆

Barstow, Calif., Will Have Butane Supply Depot

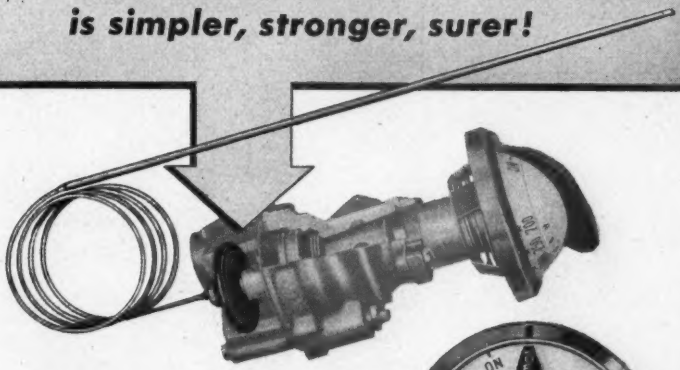
Under the name of Butane, Ltd., Distributors, J. C. Meyers and J. A. Yale are opening a butane station in Barstow, Calif. Selling under a leased contract from Butane, Ltd., of Los Angeles, this firm will provide liquefied petroleum gas to residents of the Barstow district for domestic, automotive and industrial use.

Mr. Yale was at one time in the heating and ventilating business in Los Angeles but has for several years been interested in mining in the Barstow area. Mr. Meyers has been in the mining equipment business in Barstow for some time. It is because of their acquaintance with local needs for additional butane supply in the Barstow area by truck drivers and domestic users of the fuel that it is felt the establishment of a station there will meet with success from the opening day.

More than a million in use show that

THE PATENTED ROBERTSHAW DIASTAT

is simpler, stronger, surer!



All Robertshaw products enjoy the great advantage of the work carried on constantly at the Robertshaw Research Laboratory, a laboratory devoted exclusively to the development of improved designs and production methods in the field of automatic temperature control.

Robertshaw's stainless steel Diastat – electric-welded, solderless, non-corroding – is a Robertshaw product throughout. Into it has gone the best that forty years of manufacturing experience – plus unequaled research, product development and manufacturing facilities – provide.

ROBERTSHAW THERMOSTAT COMPANY

YOUNGWOOD, PA.

MORE INCOME FROM GAS RANGES. This different sales manual not only shows your salesmen *how* to increase their earnings but fires them with enthusiasm to go out and do it. Write for a copy.

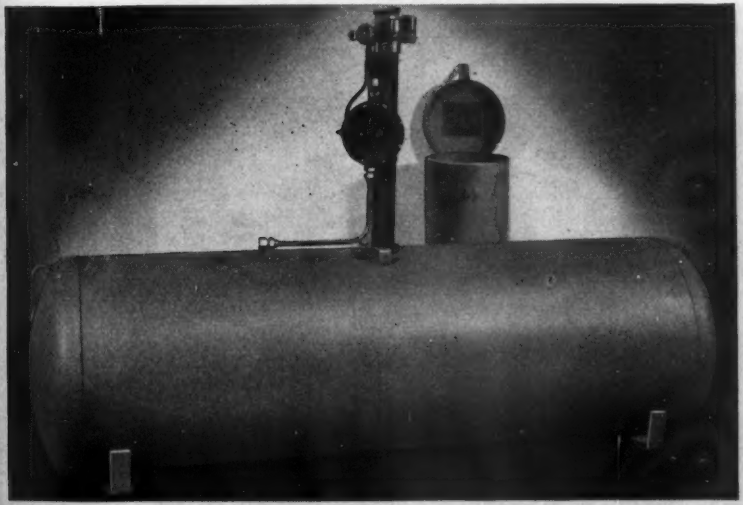
For Simplicity

REGO COMPACT UNIT SYSTEM

Only one connection is required into the storage tank . . . dangerous and troublesome leaks are eliminated. This unit answers the demand of underground bulk system operators for a compact simplified assembly of all the equipment required for a safe, approved underground bulk system.

The RegO Compact Unit is sold exclusively through licensed manufacturers who are in position to furnish complete systems meeting National, State and local requirements. Write for list of licensed manufacturers.

COVERED BY PATENT NOS. 1662291, 2005931, 2098119, RE. 20624, 2121675, 2121673, OTHER PATENTS PENDING.



Specify RegO Compact Units On Your Underground Systems

The **BASTIAN-BLESSING** Company

258 E. ONTARIO ST. CHICAGO, ILL.

Dell Rapids, S. D. Installs Municipal Butane Plant

A new municipal gas plant, which will distribute butane, has been purchased by Dell Rapids, S. D., from J. H. Seiberz, of Bemidji, Minn. The cost of the plant is said to have been $5500 and will be installed by Mr. Seiberz and an experienced crew.

The butane gas will supplant the carbureted water gas that was served to Dell Rapids consumers in the past. The old system was installed in 1905 and was one of the first in the state.

◆ ◆

Atlantic States Features LPG at Harrisburg, Pa.

The Harrisburg, Pa., Farm Show is one of the largest indoor farm shows in the United States, and differs from most such institutions and country fairs in that it is held in midwinter instead of in the fall of the year just after harvest time.

To it come the shrewd and thrifty Pennsylvania, New Jersey, Delaware and Maryland farmers, as well as many from more distant states. Since all activities and exhibits are housed in permanent buildings, the weather makes no difference to those who attend. In the great pavilion they witness stock judging, horse shows, poultry exhibits, and competitive showings of farm produce, canned goods and preserves.

Machinery, tools and equipment are on display and demonstration for the male members of the family, and homemaking appliances hold the center of attraction for the womenfolk.

One of the outstanding exhibits, of interest to the whole family, was that maintained by the Atlantic States Gas Co. As set up, it was designed to be completely self-explanatory of Atlantic service, from the tank that is buried in the ground to the appliances that burn the gas.

An attendant was on duty when the exhibit hall was open, explaining the features of ranges, water heaters and refrigerators, distributing literature and collecting names of those who expressed more than passing interest. (See photo on this page.)

◆ ◆

Van Cloud's Service Expands

The opening of two new stores in Ohio to distribute "Handigas" has been announced by Van Cloud's Handigas Service. One of the new distributing points is in the Stephens Building at Mineral Ridge, and the other is at Bulick Products Co., Warren, Trumbull County, Ohio.

The exhibit of the Atlantic States Gas Co. at the Harrisburg, Pa., mid-winter indoor farm show. *(Photo by Hoffmeier, Harrisburg.)*

Forster Blast Burner

For High Temperatures

The Forster Blast Burner, illustrated above, is one of six models of this type burner, designed to give a long tapering flame that is particularly adaptable to firing where extremely high temperatures are called for, such as kilns, furnaces for heat treating, forge furnaces, tangenically fired vertical boilers, immersion tube firing, etc.

These burners may also be used as large torches, used either singly or in batteries for weed burning, heating asphalt pavement, cleaning irrigation ditches, etc. They operate on Butane, Propane, Natural and Manufactured Gases. Made in six sizes of cast iron, five of which are also available in aluminum. Write for a copy of our Burner Catalog.

★ *We are prepared to design and install industrial butane standby plants, public service gas plants, as well as automotive and stationary engine conversions. Your inquiries are solicited.*

RANSOME COMPANY

Manufacturers of Forster Torches and Burners

Distributors of Natural and Liquefied Gas Appliances

4000 HOLLIS STREET **EMERYVILLE, CALIF.**

RANSOME

Imperial Valley Plants Change From 550 to 1000 B.t.u. Mix

Improvement in the gas service in the Imperial Valley, Calif., towns of El Centro, Brawley and Calexico was made by the Coast Counties Gas and Electric Co., during March. In the past these butane-air plants have been serving a 550 B.t.u. gas and have now been adjusted to serve a 1000 B.t.u. per cu. ft. mix.

Due to the change in heat content it was necessary to adjust all appliances, stated E. B. Mason, Jr., district manager for the company, but this was a routine matter and was successfully accomplished under the direction of R. L. Nance, who is supervisor for the company throughout California. A new rate became effective at the time of the change and billing will be made upon the therm basis.

Similar increases in heat content of gas have been made recently at the company's plants in Yreka and Dunsmuir, Calif., where the changes are working out very satisfactorily, according to Mr. Mason.

◆ ◆

Philgas Convention Held For Northeastern Dealers

Nearly 150 dealers and distributors of Utilities Distributors, Inc., coming from Maine, Vermont and New Hampshire, were present at the ninth annual Philgas convention held March 7 at the Lafayette Hotel, Portland, Me.

The meeting was opened by Peter A. Anderson, Utilities Distributors, Inc., and H. Emerson Thomas of the New York office of Philgas, chairman of the convention. Featured on the program were Roy Johnson, John Wood Mfg. Co., who spoke on "Selling Water Heaters;" C. H. Ackerman, Ruud Manufacturing Co., whose subject was "Service and Installation of Water Heaters;" Geo. R. Copeland, Servel, Inc., who explained why "Life Begins in 40;" and George Radford, Detroit-Michigan Stove Co., who discussed "Satisfied Customers Through Proper Equipment." Also included on the program were C. W. Merriam, Jr., Glenwood Range Co., W. A. Clough, dealer, Rumford, Me., and E. Martin Anderson, Edwin O. Nielsen, and W. H. Richardson, all of Utilities Distributors, Inc., Portland. The final address, "Industry Remarks," was made by H. Emerson Thomas.

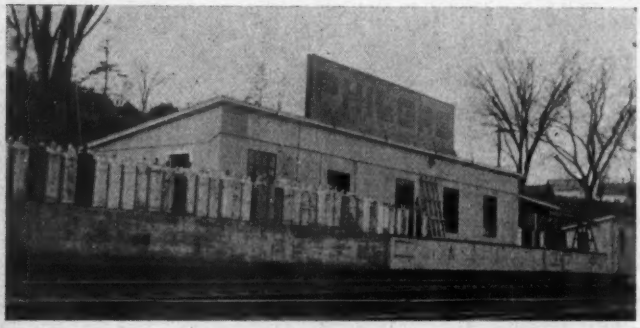
C. C. Turner of Utilities Distributors, Inc., who attended the convention in a wheel chair as the result of a recent automobile accident, delivered an impromptu address. (Photo of U. D. I plant below.)

◆ ◆

Holtz and Chambers Purchase LPG Business in Minneapolis

Harold Holtz and Howard Chambers have purchased the Modern Appliance and Butane Gas business from C. R. Larzalere in Minneapolis. The new owners expect to move into larger quarters on Second Ave. and expand the business in the very near future.

Mr. Larzalere will hereafter devote his time to a motor car agency which he formerly conducted in connection with the appliance and butane gas business.

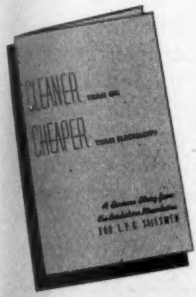


The White River plant of Utilities Distributors, Inc., located at White River Junction, Vt.

Bankrupt Resort + VULCAN L. P. G. Ranges = Thriving Summer Hotel!

WRITE FOR THE SUCCESS STORY told by this 20-cylinder L.P.G. battery installed by the Connecticut Gas Equipment Co., Bristol, Conn. It's a story of aggressive and intelligent selling that ought to be driven home. It will help you, too, sell bigger, better, more profitable commercial installations —**where you can drop off 1000 lbs. of gas at one time instead of 100.** Every one of your L.P.G. salesmen should have a copy.

WRITE FOR FREE COPIES FOR YOUR SALESMEN



STANDARD
GAS EQUIPMENT CORPORATION

VULCAN GAS RANGES AND COOKING EQUIPMENT

18 East 41st Street, New York

Conveniently located offices at Boston; Philadelphia; Baltimore; New Orleans; Chicago; Aurora, Ill.; Los Angeles.

STANDARD GAS EQUIPMENT CORP.,
18 E. 41st St., New York

Send me.....copies of success story, together with full information about Vulcan L.P.G. ranges and cooking equipment.

Name.....

Address.....

Dealer Education Cuts Service Costs in Two

By ELLIOTT TAYLOR

AN educational effort that may well have an influence on the entire liquefied petroleum gas industry has recently been launched by the United Distributors, Inc., Portland, Maine, New England distributors of Philgas and wholesalers of gas appliances, and equipment for propane use.

Large Dealer Organization

As wholesalers and distributors the United Distributors are dependent on the effectiveness of their dealer setup for their continued success in liquefied gas operations. And this effectiveness boils down to precisely how much each individual dealer knows about the job he is trying to accomplish. Every dealer in gas is a little public utility in himself, and his operations encompass the entire range of utility services. Thus he must not only be informed on the physical properties and characteristics of the fuel he is selling, but he must also have (or be) utilization, home service, public relations, and sales departments, all rolled into one.

United Distributors have approximately 100 dealers, serving consumers in the states of Maine, New Hampshire and Vermont. And as Peter Anderson, president of the company has observed, 100 dealers can represent every shade of knowledge, from the well informed and thoroughly capable to those who are blissfully unaware of possible problems until they receive emergency requests for their answers.

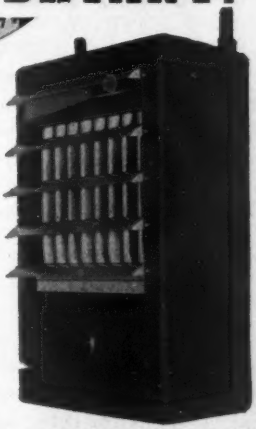
From a practical standpoint this means dollars and cents to the wholesale company. In the matter of servicing appliances, alone, there was a time when the actual cost of maintaining service men more than equalled the commissions that had been earned on their sale. Many dealers were ignorant of basic principles, and some installations were being made that were definitely detrimental to the liquefied gas business.

Service School Was Tried

A central service school for dealers and their employes was first tried as a solution to this serious situation. Dealers were invited to come or send representatives to a week of service school held at periodic intervals in Portland. This experiment was not without value, but its full effectiveness was hampered by the fact that many dealers were not able to spare their men for a week; and the trip also involved considerable expense in travel and wages paid for time not used directly in productive enterprise.

For those who did attend, the

BUYERS ALL AROUND YOU FOR L. P. G. AND BRYANT!



You make a double profit when you sell a Bryant Unit Heater to an L. P. G. customer. Profit on the heater, and on every tank of gas.

There are plenty of buyers, too, on "Main Street" and on the highways. Take eating places, for instance. If they use gas for cooking, why not for heating? And Bryant Unit Heaters are just right for town or country restaurants, lunch counters, taverns and "dining cars."

You'll make money selling Bryant equipment with L.P.G. Write for details.

Sell Bryant Unit Heaters, equipped for L. P. G. to stores, garages, restaurants, wherever people work or trade. Single (illustrated), double or triple units to take care of every heating problem, all with standard Bryant controls. You can make money selling Bryant Unit Heaters to Main Street.

THE BRYANT HEATER COMPANY

17825 St. Clair Avenue • Cleveland, O.

school itself fell short of anticipated results. It was necessary to cram too much information into a single week of instruction, with the result that students were unable to retain all of the indispensible knowledge that they had attempted to accumulate.

Following the school, the next approach was through the medium of trained and expert service men who traveled through the field, carrying information to the dealers and instructing in turn the dealers' service men. Instruction in this way became incomplete and sporadic, as it was impossible for any service man to stay long enough in a single location to help any dealer on every conceivable problem that might arise in the course of a year. The servicemen-instructors very soon became in effect high speed trouble shooters, hastening from one call to another, and leaving behind only the help they had been able to give on some one particular phase of dealer work.

Correspondence Course

Out of this trial and error method, the U. D. I. correspondence course, now in its third month, was developed. Response to this course was immediate and instantaneous, with the result that at the end of the ninth week 136 dealers and their service men were enrolled for the 34 lessons.

Replying to the direct question: "Has the course yet had time to prove whether or not it is a paying proposition?" C. C. Anderson who is in complete charge of this phase of U. D. I. activities had this to say: "My answer is that, whereas before it was necessary for us to maintain two separate service men in the territory (and they were driven to death with calls for help), now it is necessary to maintain but one service man and he has some spare time on his hands. In other words the course has already cut our service cost in half.

Enthusiastic Cooperation

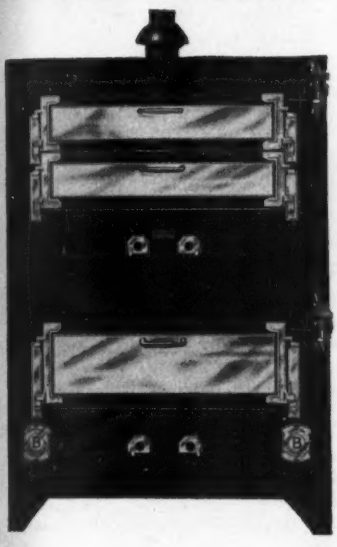
"The dealers are decidedly enthusiastic and cooperative. Many of them insist that their service and salesmen take the course and the general run of opinion is that it is the finest thing we have done to assist the dealers in many years. In many cases the dealer's service men and salesmen are doubling up. There is one instance where the dealer takes the course and holds a meeting every week, passing the information on to his men and examining them on what they learned from the lessons."

Requests have also come in from dealers outside U. D. I. territory, and as a gesture of cooperation with the industry as a whole, the course has been made available to any dealer who wishes to undertake it, at the same cost price of $15 for the full series, that is being paid by those affiliated with Utilities Distributors.

The routine under which the lessons, examinations and grade papers are handled is in accordance with conventional correspondence school methods.

The lessons are normally mailed about one week apart. But in no instance is a more advanced lesson mailed until the pupil has absorbed the information contained in the previous one. Thus the student who has had lesson No. 1 a week will receive

ARE YOU NEGLECTING



THIS RAPIDLY GROWING FIELD?

More and more butane-propane dealers are entering the commercial cooking field. The promotion and sale of heavy duty appliances brings fast load building results and profitable merchandising sales. In 1939 over 100 Blodgett Baking and Roasting Ovens were sold in every section of the United States for use with butane-propane gases. Don't neglect this rapidly growing field.

Easy To Tell, Easy To Sell Story

Established since 1848, Blodgett Ovens have been standard for nearly 100 years and represent the most complete line of Baking and Roasting Ovens in the world. **Write for the Blodgett Easy to Tell, Easy to Sell Story.**

THE G. S. BLODGETT COMPANY, INC.

53 Maple St. - Burlington, Vt.

lesson No. 2. When the answers to the examination on lesson No. 1 are received they are graded, and the correct answers worked out in detail before they are returned to the person taking the course. Enclosed at this time is a sheet bearing the questions that apply to lesson No. 2. In this way the student always has a lesson to be studying on, but in order to qualify for the succeeding lesson he must have completed his test on the previous one. There is no way that anyone can get the lessons without taking the course. At the end of the course a cross section index is furnished and a diploma will be issued to all whose marks have proven satisfactory.

The following are the titles for the 34 lessons that comprise the full course:

1. What is Propane?
   Is the supply dependable?
   What are its advantages as a fuel?
2. The Behavior of Gases.
   Fundamentals of vital importance.
3. Heat and Temperature.
4. The Transmission of Heat.
   Conduction-convection-radiation.
5. Specific Heat.
6. Latent Heats.
7. Propane burners.
8. General Burner Design.
9. Customary Burner Inputs.
10. The "Why" of Thermostats.
11. Thermostat Service Problems.
12. Pilots.
13. Making Conversions.
14. Simple Regulators.
15. Pressure Differential Regulators.
16. Miscellaneous Regulators.
17. Pressure Drop in Pipe Lines.
18. Laying Out the Job.
19. Unpacking and Setting up Appliances.
20. Instructing the Customer.
21. Automatic Gas Water Heating.
22. Figuring Water Heater Costs.
23. Selecting the Right Water Heater.
24. Space Heating with Propane.
25. Gas Lighting.
26-27-28. Gas Refrigeration.
29. Miscellaneous Domestic and Commercial Appliances.
30. Tricks of the Trade.
31. The Service Man.
32. The Salesman.
33. Selling All Three.
34. The Future of the Industry.
35. Index.

Below are some of the questions U. D. I. graduates are able to answer. Can you pass with honors?

What is the heat content of propane, per pound; per cubic foot?

After lighting a propane burner how long before the flame is at its maximum temperature?

How many gallons of water will one pound of propane raise 10°F.?

What is the difference between external and internal conduction of heat?

How much more heat will a lamp-black-coated surface absorb than a varnished copper surface?

What is specific heat?

What is latent heat of vaporization? Of fusion?

Name the eight most common types of burner heads.

What is the relation of an orifice to a spud or hood?

After the first course has been completed, it is planned to publish the entire series in book form, and to revise the book every year.

◆ ◆

A.G.A.E.M. Convention Will Be In French Lick, Ind., May 20-22

The 1940 annual convention of the Association of Gas Appliance and Equipment Manufacturers will be held at the French Lick Springs Hotel in French Lick, Ind., May 20-22, it has been announced by Frank H. Adams, president of the Association, from the national headquarters in New York.

MAKE A BIG SALES SPLASH THIS YEAR!

with the new

AGP BUDGET

GAS-FIRED AUTOMATIC

STORAGE WATER HEATER

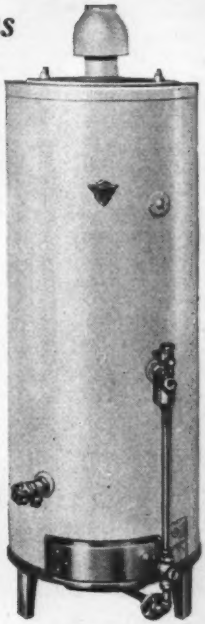
Built especially for use with bottled Gas

AMERICAN HEATING EQUIPMENT COSTS NO MORE THAN OTHERS

NOW YOU can go after the Spring Water Heater business in a big way! For the new **AGP** Budget GAS-FIRED Storage Water Heater has more features and more talking points to help you win sales and increase your profits.

Low in cost, it is specially designed for use with liquefied petroleum gases and is available with heavy galvanized steel tanks of 15, 20, 30 and 40 gallon capacities. Jacket is beautifully finished in white enamel with aluminum trim. The new **AGP** Budget is sturdily built for years of dependable, economical service. Standard equipment includes snap action thermostat that provides for 100% shut-off to main burner and pilot in event of pilot failure and many other quality features.

Write today for full information and for the name of our nearest sales office.



AMERICAN RADIATOR & Standard Sanitary CORPORATION

NEW YORK PITTSBURGH

Cast Iron & Steel Boilers & Furnaces • Radiators
Plumbing Fixtures & Fittings • Air Conditioners
Water Heaters • Copper Pipe & Fittings
Heating Accessories

AGP GAS

Copyright 1940, American Radiator and Standard Sanitary Corporation

Sales Figures Show Progress Of LPG Along Atlantic Seaboard

According to figures recently released by Col. George A. Burrell, president of the Atlantic States Gas Co., Inc., New York, the company had a total of 10,000 customers that were being regularly served up to August 1 of last year, and which were the result of sales and installations during the previous three and a half years.

The figures broken down show the different appliances in use to be: ranges, 7,517; refrigerators, 745; water heaters, 2245; space heaters, 1567; lights, 1000; hot plates, 989; commercial appliances, 837.

◆ ◆

The Chiksan Tool Co. Purchases Larger Factory

Headquarters of the Chiksan Tool Co., formerly located at Fullerton, Calif., are now established on the company's new property in Brea, Calif., where its general offices now occupy its own modern office building. The property, purchased from the Shell Oil Co., also includes facilities for housing the Chiksan factory, testing department and stock warehouse. Machinery and equipment are being moved to the new location from the former plant as rapidly as schedules permit.

Sales for Chiksan products, including ball-bearing swing joints and all-steel rotary hose, both in the United States and foreign countries, in 1939 were the largest in the company's history, with 1940 already offering indications that this year will exceed last by a substantial margin, according to Earle R. Atkins, sales manager. (New plant photo below.)

During the past year, many new applications of Chiksan ball-bearing swing joints have greatly extended the market for these joints in widely varied lines of industry. The Chiksan line is distributed nationally by Crane Co., with Chiksan representatives in principal cities to render specialized service.

◆ ◆

Men with Automotive Experience Form Dix Mfg. Co., Inc., L. A.

A complete machine shop for manufacturing butane and propane specialties, located at 4111 S. Broadway, Los Angeles, was started during March by Dick Adair and Dick Lewis. The organization will be known as Dix Mfg. Co.

The shop is equipped with full automatic precision equipment for rapid production. Mr. Adair and Mr. Lewis plan to enlarge their scope of operations as the need for articles for the liquefied petroleum gas field are developed.

Mr. Adair has been connected with the LPG industry for more than five years. Mr. Lewis has been in the automotive field for 15 years and has manufactured many automotive parts and specialties.

The new offices, factory, testing department and warehouse at Brea, Calif., of the Chiksan Tool Co., formerly located at Fullerton, Calif.

ENSIGN

BUTANE CARBURETION

Economy for

TRACTORS AND TRUCKS

The advantages of Butane for tractor and truck use are low fuel costs plus definite reductions in engine maintenance, oil consumption, etc. • Butane, properly carburetted, burns clean and dry without carbon or crankcase dilution. ENSIGN Carburetion equipment is accurately designed to obtain the most from Butane and to meet every engine need with extra performance in power and economy of operation. Consult us for complete details.

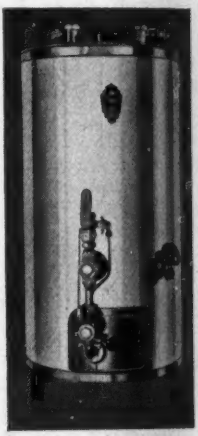
ENSIGN

CARBURETOR COMPANY, LTD.

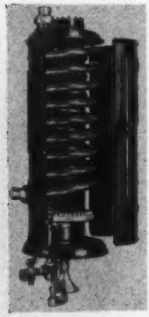
HUNTINGTON PARK, CALIFORNIA • DALLAS, TEXAS • CHICAGO, ILLINOIS

3 NEW RUUD To help You Sell

5 AND 9 GALLON AUTOMATIC WATER HEATER WITH MONEL TANK



For small homes, doctors' and dentists' offices, small stores, restaurants, offices — for clean, low-cost, trouble-free service wherever hot water demands are small or space is at a premium. A RUUD chassis and a MONEL tank with a 20-year guarantee. 5 and 9 gallon sizes. Easy to install AND EASY TO SELL. It's the water heater hundreds of your customers are looking for right now!



NEW RUUD TANK WATER HEATER

100% Automatic Cut-Off

Opens up a whole new field for tank water heaters. 100% automatic gas cut-off. Shuts off both main and pilot gas lines should pilot go out!

RUUD Hot Water Monel-Protected

RUUD "SINCE '89"

IN ONE STRAIGHT LINE

PROFIT BUILDERS for the Small User . . .

★ Here they are! Three new RUUD water heaters to crack the fast-growing small home and commercial markets. RUUD-designed and RUUD-engineered especially for butane-propane gas to give maximum hot water at lowest cost . . . to reduce your service expense . . . AND build your profits in 1940!

Now, more than ever, the RUUD line means MORE SALES—MORE PROFITS for you. For the smallest dwelling or the largest building, you have RUUD water heaters in every type and size. And—for PLUS PROFITS —MONEL tanks with the EXTRA sales appeal of rust-free service guaranteed for 20 years!

RUUD-AND-MONEL *The Profit Line for 1940!*

Backed by 45,000,000 dynamic national advertising messages making new prospects for you—RUUD-and-MONEL is the easiest-to-sell line because its the line your customers know and ask for. Get on the RUUD-and-MONEL band wagon and CASH IN!

Write Today ▶

For full details clip and mail this coupon.

TO: Ruud Manufacturing Co., Pittsburgh, Pa.
Rush me complete information on 1940 RUUD-and-MONEL Gas Water Heater line and sales promotion plans.

NAME.....

ADDRESS.....

CITY..... *STATE*.....

WE SELL..... *GAS*

(Please give trade name)

RUUD MANUFACTURING COMPANY
PITTSBURGH, PA.

New Catalog on Moyno Pumps Of Interest to LPG Industry

Among the many interesting facts which are described in the new catalog for Moyno pumps for liquefied petroleum gases are four performance curves that enable prospective users to determine at a glance what may be expected from these pumps. They show the variation in capacity due to changes in pump r.p.m., the approximate performance of a two-stage Moyno pump at 1140 r.p.m. and of a single stage at 1150 r.p.m. These LPG pumps are designed for normal operation at 1200 r.p.m. or less.

It is also explained that in pumping liquefied gases from one closed tank to another the required pressure is a function of the difference in temperature of the two tanks as shown below. This is in addition to the usual pressure losses due to pipe friction and that caused by differences in static head between the two tanks. The values given are standard for pure material, but since most commercial products are blends the actual vapor pressure will vary somewhat. Commercial propane will average about 10% higher and commercial butane will vary even more.

VAPOR PRESSURE LBS. PER SQ. IN. GAGE AT VARIOUS TEMPERATURES

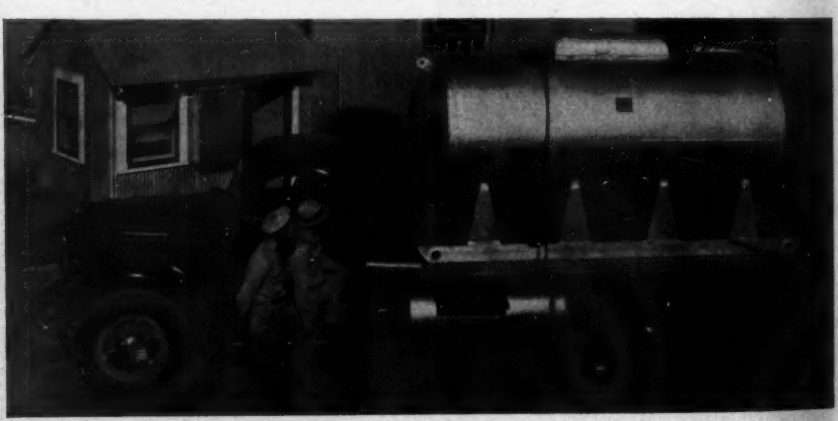
Temp. °F	*Propane*	*Isobutane*	*Butane*	*Butylene*
33°	54	7	0	4
70°	112	27	16	21
100°	196	55	37	43
130°	271	93	64	74
150°	346	128	87	116

Copies of this Moyno pump catalog may be had by writing Robbins & Myers, Inc., Springfield, Ohio.

◆ ◆

Dallas Tank & Welding Co., Inc. Will Add New Tanks to Line

Dallas Tank & Welding Co., Inc., has completed drawings for underwriters' approval of a 125-lb. working pressure butane-propane tank for domestic service, a 175-lb. working pressure butane-propane underground tank for domestic purposes, and a 200-lb. working pressure propane tank for above ground service. The tanks, which are additions to the line, will be distributed under the trade name of Economy tanks. W. M. Banks is company president.

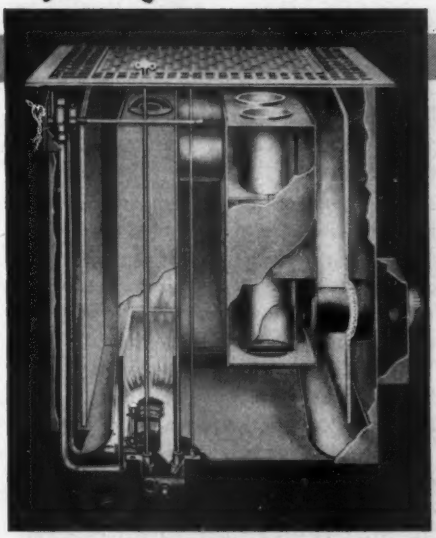


Bovalene Gas Co., Wichita Falls and Stamford, Texas, have put in service two new 1442-gal., net, butane skid tanks for oil field service. A representative of the company, of which C. V. Vandervort is president, is shown accepting delivery of the tank from W. G. Brumit, superintendent, Dallas Tank & Welding Co., Dallas.

DON'T MISS SPACE HEATING PROFITS!

FEATURE WARD FLOOR FURNACES WITH

100% Safety Pilot



Double-Sure Pilot† protects *all* Models

Automatic and Standard

There's money to be made from *space heating* with liquefied petroleum gases. Distributors in nearly every state are doing it with WARD Floor Furnaces. Thousands of Butane-Propane users enjoy Ward's clean, healthful winter comfort PLUS the *complete* protection of WARD'S *double-sure* 100% SAFETY PILOT. Shuts off gas flow to *both* burner and pilot if flame goes out. *Not one bit of gas can escape.* Sell WARDS...they sell your gas and keep your customers sold.

NO BASEMENT NECESSARY

Furnace hangs beneath register at floor level... pours its evenly circulated warmth directly into the room. No heat losses... no wasted fuel.

WRITE FOR LATEST CATALOG

WARD Floor Furnace

WARD HEATER CO. · LOS ANGELES, CALIF.

Cash Prizes for "Operating Kinks"

THE nineteenth annual convention of the Natural Gasoline Association of America, scheduled for May 15 - 17 at the Hotel Tulsa, Tulsa, Okla., will again devote an entire day to the "Operating Kinks" session for field and plant men of the natural gasoline industry, according to a recent announcement of William F. Lowe, secretary of the Association.

Originally begun as an experiment to stimulate discussion of problems by operating men, this program feature has become one of the principal attractions of the convention for plant superintendents and field foremen as well as for engineers and executives. The session takes the form of a prize contest in which operating men compete with their original ideas for doing any job within their province in a better, cheaper or safer way. A total of $165 is distributed in prizes.

In supporting the suggestion to continue the contest again this year, George P. Bunn, Phillips Petroleum Co., and president of the Association, asserted that its value had increased every year since its inception. "This is not only true of the quality of the entries, but in the presentation and discussion," he stated. "Five years ago when we set aside but two hours for the first 'Kinks' session, there were only 31 entries and not more than 75 men attended the discussions. Last year there were 105 entries and the huge ballroom was full of men listening to the presentations and taking notes for an entire day. No finer opportunity has ever been given to field and plant men to demonstrate their ability to improve methods, tools and operations to the benefit of their companies and the industry as a whole.

The operating ideas submitted are divided into four classes by the judges and prizes of $15, $10, $5, and $3 are awarded in each class for the outstanding entries. A grand prize of $25 is awarded for the most valuable offering in all classes. Judging will be on a basis of practical application and need; labor, time and money saving features; and originality. Almost all "Kinks" are concerned with special tools, new or easier methods, safety devices, short cut operations, unique applications, etc., and may apply in any one of the following classifications:

A. Operation or maintenance of engines, compressors, boilers, turbines, electric motors or generators.

B. Volumetric measurement, metering; temperature, pressure, volume or liquid level controlling; laboratory equipment or methods; loading or handling of plant products.

C. Distillation; fractionation, absorption, or treating of gas, gasoline or oil; general processing; storage of gasoline.

D. Field operation, pipe line, general maintenance, accounting, and record keeping. Any other phase of the natural gas-

Insist on

BU-GAS

REG. U. S. PAT. OFF.

Today's leading liquefied petroleum gas for heavy-duty internal-combustion engines, industrial fuel requirements, and heavy-demand domestic heating.

FIRST to make Butane generally available for commercial purposes, Standard Oil has ever since kept BU-GAS *first* in:

Quality. BU-GAS insures uniform performance through adjustments for seasonal conditions. It is non-corrosive and moisture free.

Availability. BU-GAS is manufactured and available for delivery at six refineries. Ample tank-car equipment assures prompt shipment.

Distribution. BU-GAS Distributors operate the largest fleet of high-pressure tank-trucks in California, Arizona and Nevada, assuring prompt deliveries any time, anywhere.

Development of Equipment. BU-GAS Distributors and Standard Oil's technical experts have always lead in the development and installation of utilization equipment.

For prompt deliveries and further information call any of the following authorized distributors

Ransome Company: Emeryville, Sacramento, Selma and Redding, California. Reno, Nevada.
Frank Hennessy: San Jose, California
Petrolane Ltd.: Bakersfield, California
Crook Company: Los Angeles and El Centro, California
Frank H. Bagley: 29 Palms, California
Windolph Bros.: Santa Ana, California
Fannin's Hardware: Phoenix, Arizona
Home Ice & Fuel Co.: Tucson and Wilcox, Arizona
Foster & Long: Safford, Arizona
A. & B. Schuster: Holbrook, Arizona
Northern Butane and Plumbing Co.: Prescott, Arizona
Matlock Electric Supply: Globe, Arizona

STANDARD OIL COMPANY OF CALIFORNIA

TO ALL

NATURAL GASOLINE MEN

Greetings

from the

Natural Gasoline Supply Men's Association

We are looking forward to seeing you at the

NINETEENTH ANNUAL CONVENTION

of the

Natural Gasoline Association of America

MAY 15 - 17 . . . Hotel Tulsa, Tulsa, Oklahoma

MEMBERS OF THE NATURAL GASOLINE SUPPLY MEN'S ASSOCIATION

The American Rolling Mill Company
The Bristol Company
The Brown Instrument Company
BUTANE-PROPANE *News*
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Chicago Bridge & Iron Company
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Continental Supply Company
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Joseph A. Coy Company
Dresser Manufacturing Company
The Fisher Governor Company
The Foxboro Company
Frick-Reid Supply Corporation
Gasoline Plant Construction Corp.
Goulds Pumps, Inc.
Hanlon-Waters, Inc.
Hercules Motors Corporation
Ingersoll-Rand Company
Mason-Neilan Regulator Company
C. A. Mathey Machine Works
Merco-Nordstrom Valve Company
Metric Metal Works
Midwest Piping & Supply Company
Moorlane Company
National Petroleum News
National Tank Company
Naylor Pipe Company
The Oil & Gas Journal
Petroleum Engineering, Inc.
The Petroleum Engineer
Pittsburgh Equitable Meter Company
The Refiner & Natural Gasoline Manufacturer
The Refinery Supply Company
Taylor Instrument Company
Tulsa Boiler & Machinery Company
Vinson Supply Company
Westcott & Greis, Inc.
Woobank Pump & Machinery Co.
Worthington Pump & Machinery Corporation
Wyatt Metal & Boiler Works
John Zink Burner Company

oline industry not covered in the above classes.

The Convention Program Committee consisting of H. W. Harts, Warren Petroleum Corp., Tulsa, chairman; W. F. Fulton, United Gas Pipe Line Co., Houston; J. R. Jarvis, Lone Star Gasoline Co., Dallas; G. W. McCullough, Phillips Petroleum Co., Bartlesville; C. R. Williams, Continental Oil Co., Ponca City; D. M. Wolfe, Standard Oil Co. of California, San Francisco; and R. A. Worley, Parade Gasoline Co., Shreveport, has announced the following rules for submission of entries in this contest:

1. Any employe of a natural gasoline manufacturer may submit one or more "Operating Kink" ideas.

2. Permission of the employer must be secured before any idea is submitted.

3. Each idea must be submitted in writing, and two copies of each must be presented in the form designated on the "Operating Kink" blanks which may be secured from the Natural Gasoline Association of America, 923 Kennedy Building, Tulsa.

4. One clear drawing, in ink with clear lettering, or distinct photograph or blueprint may be submitted with each entry, though none of these should exceed 12 in. by 14 in. in size. Larger drawings are difficult to reduce for the making of lantern slides.

5. Not more than five minutes' time will be allotted for the explanation of any single entry.

6. The originator of the kink, although urged to do so, need not be present to explain his ideas.

7. Prize awards are to be made by a committee of gasoline plant operators, and their decisions will be final.

8. All "Operating Kink" entries should be in the N. G. A. A. offices by May 5, 1940, in order that the judges may have ample time to study and classify the entries before the meeting date.

Southern Section, L.P.G.A., Is Arranging April Program

The program for the April 29-30 meeting of the Southern Section of the Liquefied Petroleum Gas Association has not yet been completed, but prospective speakers and subjects are being carefully arranged, according to R. L. Edwards, secretary. The convention will be held in Birmingham, Ala., at the Tutwiler hotel.

Those who have accepted assignments to date are: W. Cooper Green, president of the Birmingham City Commission, who will deliver the address of welcome when the meeting convenes; "The South and its Possibilities" will be discussed by Karl Landgrebe, vice president of Tennessee Iron, Coal & Railroad Co.; Carl Sorby, promotion director of Geo. D. Roper Corp., will probably talk on the 1940 sales outlook; Hugh White, president of Alabama Public Service Commission, has as his subject, "The South's Freight Rate Problem"; and J. J. Kropp, of Ralph M. Brodie Co., Inc., will read a paper on "Metering Liquefied Petroleum Gas."

One of the principal topics to be covered at the meeting will be the problems which the industry encountered during the extreme cold weather of the past winter.

◆ ◆

Southern Butane Dealers Add to Membership

The Southern Butane Dealers, Inc., met at Macon, Ga., on March 8 to discuss the year's outlook and to admit two new members to the present group of six.

The new dealers are the Southern Gas Co., Blackshear, Ga., and Consumers Gas Co., Albany, Ga.

A group meeting of salesmen of all Southern Butane Dealers' members met on March 15 at Macon to listen to a well-balanced sales program, which was conducted by Claude Haugabook, of Montezuma, Ga., and Wm. Morgan, Dublin, Ga.

According to E. Roy Taylor, secretary of the association, the group is enthusiastic because of the results of last year's cooperation and are in close unison over the plans for 1940.

PRODUCTS

Aristocrat Range

The Anderson Stove Company, Inc., Anderson, Indiana.

Model: Aristocrat Series No. 301-5. Approved for L.P.G. service.

Description: A complete line of ranges in both the Aristocrat and Imperial series, for the LPG field, each offering the advantages of the Anderson "Sealed-Heat" cooking principle.

Features Claimed: Super retained heat oven, 35 lbs. capacity—cooks with the gas turned off; deep well cooker—cooks with the gas turned off; complete insulation on all six sides of the oven, completely enclosing the deep well cooker; individual top burner drip rings; automatic top burner lighter; safety lock type gas valves; base recessed for toe room; centralized valve control; white vitreous enameled folding top cover; porcelain enameled cast iron cooking top; four speed top burners—with automatic simmering feature; high-speed, waist high broiler—rolls out on ball bearings; built-in cast aluminum griddle; ground fitted cast iron oven front and door frame; slide out, safety, non-tip oven racks; flush to wall construction; roll-away broiler and griddle that can be used at the same time; steel distribution plate over broiler to prevent hot spots on top of griddle and provide concentrated heat to the broiler platter; cast aluminum, smokeless broiler platter; Lux timer; white handle trim; broiler burner flame concealed at all times.

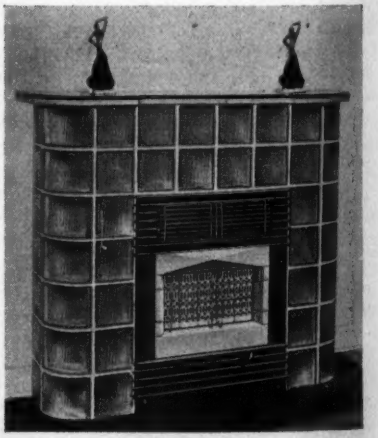
Dimensions: Aristocrat series: 37½ in. wide; 29 in. deep; cooking top 36 in. high; height to top of backrail 44 in.; oven 16¾ in. wide, 16 in. high, 20 in. deep. Shipping weight, approximately 440 lbs.

◆ ◆

Glass Mantel for Heater

Cirklair Products Division, The Folsom Co., 509 Elm, Dallas, Texas.

Description: This is a sham mantel of glass bricks that offers the opportunity to have multi-colored lights for decorative purposes and to give a warm, soft light that will harmonize with the glow from the gas heater unit that is inset in



the mantel. No insulation is necessary, due to the patented multiple flue design which maintains a controlled circulation of humidified heat and minimizes absorption of heat by the metal parts of the heater unit. The Cirklair inset heater unit that is used in this mantel is A.G.A. approved for use with liquefied petroleum gases as well as with natural gas.

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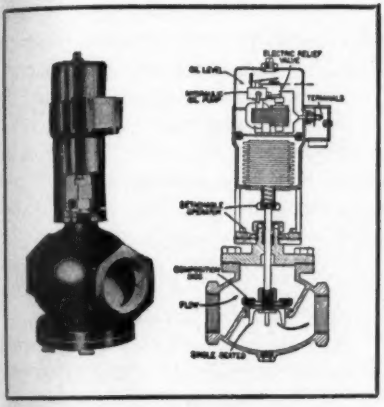


Hydramotor Valve

General Controls, 700 W. Ivy St., Glendale, Calif.

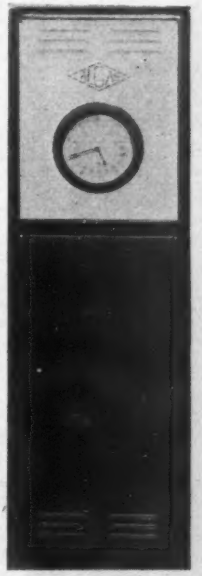
Description: The General Controls hydramotor valve, is a new all-purpose hydraulically operated motor valve for handling air, gas, water, oil (any gravity, any grade), brine, saturated steam, etc. The new valve is of the full-ported, single-seated type and affords 100% tight shut-off in any position. The electric pilot valve has a simple, two-wire, current failure control, with exceptionally low current consumption—only 60 VA during the opening cycle and 5 VA when open. No gears are used and there is only one internal switch. The entire operator is totally enclosed, sealed in oil, and is drip-proof. There are a minimum number of all moving parts bathed in oil. The entire operator is detachable from the valve body. The valve itself is normally closed; applying current opens the valve. Composition discs in the valve body are furnished to suit the service. Style "F" disc is for air, brine, butane and natural gas, light oils, and water of temperatures not exceeding 125° F.; style "H" disc is for steam to 150 lbs., and temperature not exceeding 400° F.; style "L" disc is for hot water to 250 lbs. and temperature not exceeding 250° F., and for steam up to 25 lbs. Hydramotor valves are furnished in IPS valve sizes of ½ in. to 1½. with brass body, bronze trim, and 2 in. to 4 in. with iron body, bronze trim. The 4 in. size has flange connections optional.

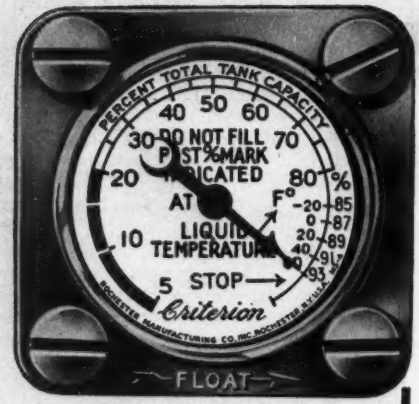
◆ ◆

Dispensing Unit

American Liquid Gas Corp., Los Angeles, Calif.

Description: This butane dispenser consists of an explosion-proof motor; explosion-proof switch with overload relay; high pressure butane pump; vapor trap; butane meter, which indicates gallons pumped and registers total gallons; and an automatic safety shut-off. The fuel is automatically maintained so no vapor can pass through the meter and system is arranged to accurately measure all fuel passing through meter. It is encased in an attractive all steel cabinet, ready to connect to above-ground butane or propane storage, and is finished in red and white on the panels, with black frame work for attractive display.





For SAFETY'S SAKE Specify

ROCHESTER

CRITERION GAUGES

Rochester Criterion Gauges are designed specifically for liquefied petroleum fuels. Permanent magnet pointer control—no packing glands.

- **No opening through Gauge head into tank.**
- **No wastage of fuel when in use.**
- **No keys or wrench required when reading.**
- **LOOK AT DIAL and know instantly the ACTUAL PERCENTAGE of TOTAL CAPACITY you really have in the system.**
- **RED PORTION at left hand of scale WARNS USER when fuel needs replenishing.**

ROCHESTER GAUGES are distributed through Manufacturers of L. P. G. Systems. Guaranteed and backed by the experience gained in manufacturing upwards of fifteen million various gauges.

Specify Rochester Criterion Gauges on YOUR L. P. G. Systems

ROCHESTER MFG. CO., INC.
17 ROCKWOOD ST. • ROCHESTER, N. Y.

ROCHESTER
Criterion
GAUGES

Listed as standard by the Underwriters' Laboratories.

What's Your IQ on LPG?

THE following statements, prepared by the U. S. National Park Service Safety Committee, of which Frank L. Ahern is chairman, relate to some of the important characteristics of liquefied petroleum gas, with particular emphasis on propane gas, and details of installation.

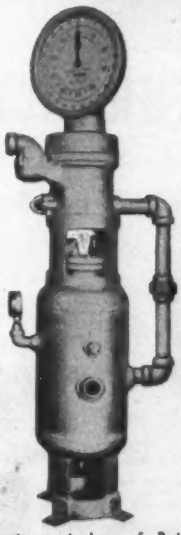
Underscore the word "True" at the right of each statement which you consider true, and the word "False" at the right of each statement that you consider wholly or partly false. After you have done this, turn to page 86 for the correct answers.

A score of twenty or more correct answers indicates a good knowledge of the characteristics of propane.

1. Propane is one of the hydrocarbon family of liquefied petroleum gases. True False
2. Propane will vaporize at temperatures below that of the freezing point of water. True False
3. Butane and propane have the same vaporization characteristics. True False
4. Propane is heavier than air and in case of leak will flow to low points and through ventilation openings in foundations. True False
5. Propane stored in the cylinders, as delivered for use at buildings, is a gas. True False
6. A propane gas leak can be de-

tected easily by the odor without the addition of an odorant.
True • False

7. Copper tubing due to its flexibility is recommended for distribution lines in propane gas installations. • True False
8. Flared connections are unsatisfactory for copper tubing for propane gas installations.
• True • False
9. The burners for propane gas appliances are the same as those for municipal gas appliances.
True • False
10. A concrete foundation for the support of propane gas cylinders is good practice. • True False
11. A ventilated metal cabinet for housing propane gas cylinders is recommended. • True False
12. Openings in foundations near propane gas cylinders are satisfactory. True • False
13. Rigid iron pipe for propane gas systems is as safe as copper tubing. • True False
14. Rigid iron pipe for propane gas systems will not break at connections as readily as copper tubing in case of snow pressure or other unusual disturbances.
True • False
15. Building openings below the vent from regulators should be at least five feet from the vent.
• True False
16. Storage of combustibles near propane gas cylinders is a safe practice. True • False
17. Special precautions are needed in selecting the location for propane



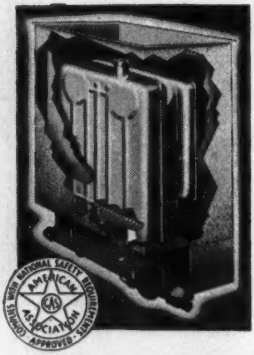
Smith-metering assures hair line accuracy—eliminates errors and losses. Tested to high safety factor for 250 lbs. working pressure. Fast flow, low head loss. Precision construction, rotary positive displacement principle, guaranteed sustained accuracy Made in two models. Write for Bulletin No. 123.

SMITH BUTANE DISPENSING UNIT

Meter, vapor eliminator and all essential equipment combined into one dispensing unit for accurate metering of Butane, Propane and other liquid petroleum gases at loading stations.

SMITH METER COMPANY
LOS ANGELES, CALIF.
DALLAS CLEVELAND NEW YORK CHICAGO
SAN FRANCISCO CINCINNATI

T★O★P★S★!



Pacific's New 1940 Line of

FLOOR FURNACES

10.....Styles and Sizes

3.....Interchangeable Burners

10 Standard Pkg. Control Assemblies

Give You

300 STOCK MODELS!

Smaller stock investment. More latitude in fitting furnace to job. Investigate!

PACIFIC GAS RADIATOR COMPANY

Huntington Park, California

gas cylinders. • True False

18. Propane gas is lighter than air. True • False
19. Appliances that have been tested for use with propane gas are available. • True False
20. It is never advisable to place propane gas cylinders at the gable end of a building. True • False
21. Tests for propane gas leaks may be safely made with soap suds. • True False
22. Placing propane gas cylinders near stoves is a safe practice. True • False
23. It is unnecessary to protect underground copper tubing from punctures. True • False
24. Propane gas mixed with air may result in a serious explosion if ignited. • True False
25. Butane will not vaporize at freezing temperatures unless vaporizers are provided. • True False

◆ ◆

Sprague Meter Co. Will Build Pacific Coast Warehouse

F. L. Fairchild, president of the Sprague Meter Co., has announced that the corporation has purchased a tract of land in the Hostetter industrial district of Los Angeles, where they will start work immediately on a modern warehouse to serve the LPG and natural gas industry in that territory. In constructing this warehouse, the management has an eye to the future possibilities of manufacturing on the Coast should it be found economically sound to do so and of material advantage to the customers.

E. H. Roseberry, vice president of the company, will be put in full charge.

Illinois Bottled Gas Co., Inc., Holds Its Largest Convention

The annual dealer convention of the Illinois Bottled Gas Co. was held in the Congress hotel in Chicago on Feb. 15, attended by the largest group that ever registered at one of these yearly gatherings. There were 408 dealers and many salesmen, and wives, who listened to the full day's program and sat around the banquet table in the evening. All were guests of the Illinois Bottled Gas Co.

The address of welcome was made by Edward N. Nelson, president.

In this one day meeting the dealers placed orders for $25,000 worth of gas ranges, the largest commitment that has ever been made at a convention held by this group. Partly upon this premise is based the estimate that there will be 150,000,000 meals cooked on Dri-gas in 1940, as compared to the 100,000,000 that were so cooked last year. The company reported that its 1939 sales volume was greater than during any previous year,

"Please take a letter," says Mr. Geroy.

amounting to 54 per cent increase over 1938. Also, there was the largest dollar gain in the history of the company.

According to B. D. Geroy, sales manager, the Illinois Bottled Gas Co. now has 458 dealers in Illinois, Wisconsin, Indiana, Iowa, Michigan, Ohio and Kentucky.

ROUND OAK RANGES
Factory Built For
Tank or Bottled Gas

THE new Round Oak *Marquette*, illustrated above, is really tops in beauty, convenience, efficiency and sales appeal. Ideal for your market, too... because it is FACTORY BUILT for tank or bottled gas and never requires unhandy adjustments.

A FULL LINE

But that is only one. With ten other outstanding ranges... designed to meet every need and priced to fit every budget... Round Oak offers a complete line that is always easy to sell; a profitable line backed by a famous name. Learn more about it. *WRITE FOR FACTS.*

ROUND OAK
of Dowagiac, Mich.
STOVES • RANGES • FURNACES • OIL BURNERS • AIR CONDITIONERS • STOKERS

Round Oak Co., Dowagiac, Mich. Dept. BP-4
Send me the facts on Round Oak ranges today!

Name_____

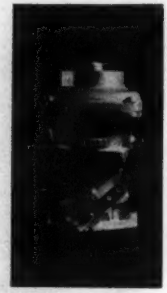
Address_____

City_____ State_____

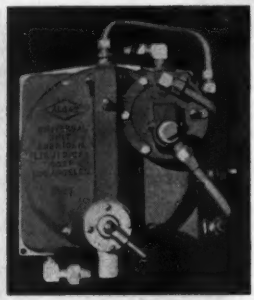
"ALGAS"

PERFORMANCE

The L.P.G. Industry's choice for ALGAS butane, propane and natural gas carburetors is, of course, based primarily on performance. The equipment is fully guaranteed.



ALGAS Butane, Propane Gas-Air Mixer



ALGAS Converter

PROFIT

We have a proven non-obligatory sales plan for you, based on profit.

A Sales and Service Manual goes to each dealer. It is so complete and instructive, that the average mechanic can, QUICKLY, EASILY, and CORRECTLY make an installation. Dealerships solicited.

AMERICAN LIQUID GAS CORP.

1109 Santa Fe **Los Angeles**

Pacific Coast Section, L. P. G. A., Will Meet April 3 in Stockton

The Pacific Coast Section of the Liquefied Petroleum Gas Association will hold its next meeting in Stockton, Calif., on April 3. Headquarters will be the Clark hotel and the morning session will open at 10 o'clock. Chairman C. L. Parkhill will preside.

This will be a general meeting, open to members and all who are interested in the industry. The all-day program will be crammed full of important committee reports and discussions of Association affairs. Of wide interest will be the report of the annual meeting of the national Association in Cincinnati in February, at which time a new $10 sectional membership was created for those whose annual gross business does not exceed $12,500.

Other reports will include those covering the proposed revision of the new Industrial Accident Commission code; Association programs for the future, and membership committee plans.

◆ ◆

J. H. Schmidt Will Cover Texas For Pittsburg Water Heater Corp.

The Pittsburg Water Heater Corp. has announced the appointment of J. H. Schmidt on March 1 as direct factory representative in the State of Texas for the complete line of automatic storage, instantaneous and multi-coil hot water heaters of all sizes for residences, office buildings, public buildings and institutions that are manufactured by the company.

Mr. Schmidt will make his headquarters at 3300 Main Street, Dallas.

◆ ◆

Texas Butane Gas Co. Opens Wichita Falls, Texas, Store

The Texas Butane Gas Co. opened a retail appliance store and agency for liquefied gas in Wichita Falls, Texas, the first week in February. A wide territory around Wichita Falls and in Wichita and Archer counties will be served.

J. J. Decker is manager and R. B. Beasley assistant manager of the new concern.

L. J. White, Southern Steel Co., Receives "Pioneer" Award

Of interest to the liquefied petroleum gas industry is the news that Lloyd J. White, vice-president in charge of engineering, Southern Steel Co., San Antonio, Texas, has just received the "Modern Pioneer" award from the National Association of Manufacturers for developing greater use of liquefied petroleum gas through many patents used in the Hydro-Gas System.

LLOYD J. WHITE

The honor was conferred by a group of distinguished scientists headed by Dr. Karl T. Compton, president of the Massachusetts Institute of Technology. Mr. White's selection came after a six months' search for those men whose pioneering on the frontiers of industry has resulted in significant contributions to the American standard of living.

A dinner to formally bestow the recognition on Mr. White and other recipients of awards was given at the Hotel Jefferson, St. Louis.

It is fitting that this award for the skill and perseverence which built new industries and new jobs and brought innumerable comforts and conveniences should come on the one hundred and fiftieth anniversary of the American Patent System, to which inventive genius looks for encouragement and protection. This patent system has accounted largely for the growth of manufacturing from its once insignificant role in colonial days to its dominant place in today's industrial life.

Others who received Modern Pioneer Scrolls along with Mr. White included world famous names such as Henry Ford, Charles F. Kettering, Orville Wright and many others known chiefly in engineering and scientific circles, even though the products they created are in everyday use.

1940 HOTSTREAM WATER HEATER CATALOG and MANUAL

Your biggest load (and *profit*) builder is *water heating*. Hotstream gives you the most complete line of heaters *specially designed* for safe, efficient, economical operation with Butane and Propane. Whether for kitchen, basement or bathroom—there are appropriate models for every requirement at prices that mean greater profits from equipment sales.

Write today for this 48-page illustrated catalog, and get the complete story on water heating.

THE HOTSTREAM HEATER COMPANY
8007 Grand Avenue • Cleveland, Ohio

RESEARCH

● **BUTANE-PROPANE *News* wishes to keep its readers informed regarding technical and practical advances concerning research, manufacture, development, and transportation in the liquefied petroleum gas field. In this column will be found a resume of recently published articles, papers, bulletins and books dealing with the industry's various phases.**

The Compressibility of Gases — George Granger Brown. *Petroleum Engineer*, Jan. 1940, pp. 21-40. 1. Pure Gases. In dealing with gases at low pressure, the ideal gas relationship has been, and is, a convenient and generally satisfactory tool, which in the past has also been used for computations under pressure, but when faced with measurements and calculations for gases under high pressure the use of the ideal gas relationship may lead to errors as great as 500%, as compared with 2 or 3% at atmospheric pressure. In this article the use of the compressibility factor, which is reasonably convenient and sufficiently accurate for present engineering requirements, is described.

Gas Fired Blast Furnace for Melting Metals, Alloys and Heat Treating. —Of interest to practical shop men, home workers, amateur metallurgists and experimenters requiring a furnace to melt 10 to 15 pound charges. Excellent for making alloys, heat treating, case hardening, enameling, etc. Complete instructions how to build and use. **Designing Thermostats for Air-Conditioning and Heat-Control Purposes.**—Gives complete information to enable anyone to design and build thermostats of many types, such as are used for controlling temperature, automatic furnace regulators, air-conditioning regulators, humidity-control units, electric flat irons, safety switches to turn off power when motors overheat, etc. **The A B C of Air-Conditioning.**—Enables anyone to quickly acquire a general practical working knowledge of air-conditioning. Tells what complete air-conditioning is and how it works. Shows why air-conditioning is vital for health and comfort not only in the home but also in stores, shops and restaurants, etc. These three books published by Chemical Publishing Co., Inc., 148 La Fayette St., New York City. Price, $1. each. (The Chemical Publishing Co. can be reached only at the New York address, as its plant is no longer at Easton, Pa.)

Engineering Considerations Underlying Design of Coastal Recycling Corporation's Distillate Recovery Plant —H. N. Wade. *Petroleum Engineer*, Feb. 1940, pp. 129, etc. Absorption process adopted to obtain efficient extraction at high operating pressures; Direct-fired heater essential in providing required heat to fat oil; Induced-draft cooling tower employed to cope with high atmospheric temperatures, high humidity, and low wind velocities.

Methods for Estimating the Corrosivity of Soils—K. H. Logan and E. A Koenig. *GAS*, Jan. 1940, pp. 19-22. This article affords an opportunity for comparison of the many currently used methods with actual corrosion data in operating lines. A. P. I. paper, Chicago, 1939.

Piston and Piston Ring Temperatures—P. V. Keyser and E. F. Miller. *Journal of the Institute of Petroleum Technologists*, Dec. 1939, pp. 779-790. Piston deposits; Methods of measuring piston temperature; Cylinder wall temperature measurement; Laboratory experiments; Effect of design on piston temperature.

Evaporative Index—G. S. Gardner. *Industrial and Engineering Chemistry*, Feb. 1940, pp. 226-231. A simplification of the Maxwell-Stefan equation is given, for the rate of evaporation at a definite point

on a liquid surface: $E=K(D_iMpA1)$. This equation can be extended to cover the rate of evaporation over a finite liquid surface and can be used as a comparison of evaporating rates of liquids. The term "evaporative index" is suggested for the group D_iMpAl. By comparison of experimental and calculated values of the evaporative index, both for the author's data and for results reported in the literature, the practical utility of the evaporative index is demonstrated. Vapor pressure curves, covering the range from room temperature to the boiling point, are given for several liquids.

Field Welding Procedure for Storage Tanks and Vessels—*Welding Engineer*, Feb. 1940, pp. 17-20. Typical details of joints used in tank construction —Direction of electrode travel in welding vertical joints—Sequence of welding to minimize shrinkage stresses—Procedure in welding pressure tanks. Illustrated.

A Laboratory Method for Evaluating the Influence of Lubricating Oils on Carbon Deposition in Internal-Combustion Engines—By H. A. Everett and G. H. Keller. Bulletin No. 48 of the Pennsylvania State College Engineering Experiment Station, June 19, 1939.

An Investigation of Motor Gasolines—By Burton J. Robertson. Bulletin No. 13, of the Engineering Experiment Station of the University of Minnesota, May 3, 1939.

Evaluation of Used Crankcase Oils —By A. J. McMaster and Andrew Christy. Published by General Motors Laboratories, Inc. The present method of evaluating used crankcase oil by a mileage criterion does not take into account all of the factors which affect oil depreciation; namely, type and condition of the engine, manner and speed at which the car is operated, climatic conditions, etc. The various constituents of a typical used oil sample are enumerated and it is shown that the acidity of engine lubricating oils increases in a definite manner with deterioration. A new method and apparatus are described for measuring acidity based on the relationship between acidity and electrical conductivity of oil. The results of many tests are discussed and other constituents of used oil are shown to have substantially no effect upon the conductivity. In the appendix, optical methods of evaluating used oil are described and a mathematical analysis of the effect of oil consumption and make up oil upon acid concentration is given.

Economic Dynamics of the Domestic Demand for Motor Fuel—Norman D. Fitz Gerald *Petroleum Technology*, Feb. 1940, p. 7, etc. The general factors affecting utilization of motor fuel are well known but it is the purpose of this paper to employ the recently developed technique of economic dynamics to describe them mathematically. It is not intended in this study to throw light on the reasons why any motor fuel at all is consumed; but to discover relationships explaining why more was consumed at one time than another.

Gasoline Manufacture and Pressure Maintenance in One Operation—*Refiner*, Feb. 1940, pp. 59-61. Natural gasoline manufacture as well as the repressuring of the formation in the adjacent field is accomplished in the combination plant, operated by Rhodes Field Gasoline Co., Jack County, Texas. The plant controls distribution of the high pressure gas back to the input wells. It is a straight compression unit, employing two states of compression, which recovers liquid products at three points. The first is in an accumulator after the gas from the field is cooled, prior to passing into the intake header; the second is the low stage accumulator and the third is the high stage accumulator. At this point all products are condensed and pumped to form a composite mixture for stabilizing. Illustrated.

Locating Pipe Line Leaks with Odorant—L. Millis. *G A S*, Feb., 1940, pp. 30, 31. Describes the system used by Central West Utility Co., Herington, Kansas, to detect gas pipe line leaks by adding odorant to the gas flow.

A Good Gas Load Builder

A. R. WOOD RADIANT GAS BROODER

200,000 prospects are ready to buy liquefied petroleum for brooding, once they have used it with the A. R. WOOD "Radiant" GAS BROODER. It is the finest brooder fuel available because it is safe, economical, dependable, and clean. The Wood brooder is built especially for this fuel. Thousands of satisfied users throughout the U. S. Factories east and west.

Send for free folder

A. R. Wood Mfg. Co.

Santa Cruz, Calif. Luverne, Minn.

National Pyrofax Contest Won by Indiana Company

The Hub Music and Supply Co., distributors of Pyrofax bottled gas at Crown Point, Ind., was recently awarded first prize for winning a national sales contest among Pyrofax representatives. The Hub company, headed by E. L. Dietel and J. B. Killing, attained first place in the contest in December. Their November and December sales surpassed by 300% their sales for the same period of 1938, and equaled the June volume of business.

A cash prize was awarded the Crown Point company at a distributors' banquet held at the Knickerbocker Hotel in Chicago. At the same meeting R. W. Lambert, Pyrofax salesman affiliated with the Hub Music and Supply Co., was presented with a watch for outselling other salesmen in the district.

◆ ◆

Oklahoma Hydro-Gas Dealers Meet In San Antonio, Texas

Sims & Sims, Oklahoma City distributors of Hydro-Gas, and dealers from several sections of the State met in San Antonio, Texas, Tuesday, March 12. Manufacturing and fuel storage facilities of the Southern Steel Co. were inspected.

George Isbell, advertising executive, outlined before the distributors and dealers the spring advertising program which is to be inaugurated at once. He presented facts concerning material advertising aids available to the dealers and also described the progress of the big prize contest which is being conducted among system users.

M. E. McKay discussed with the dealers proved methods of gas system selling and the effects upon underground LPG systems of the recent record-breaking cold wave in various sections of the country.

◆ ◆

Menard Gas Co. Incorporates

The Menard Gas Co., of Menard, Texas, has filed articles of incorporation with a capital stock of $1000. The incorporators are A. M. Russ, E. J. Rose and Edward D. Muir.

Monte Vista, Colo., Votes Butane Gas Franchise

At a special municipal election on Feb. 27, the city of Monte Vista, Colo., voted a 20-year franchise to the Superior Utilities, Inc., to furnish liquefied petroleum gas to its residents.

The Superior Utilities is an Amarillo, Texas, concern that has similar franchises in various cities in Colorado and New Mexico. According to T. P. Curran, who represented the company in Monte Vista, the construction work on the project was scheduled to start on April 1, subject to weather conditions.

It is expected that $25,000 will be expended for storage tanks and mains for the distribution system. Pure propane gas, free of hydrogen sulphide and odorized for protection of consumers, will be served. In addition to regular taxes which the company will pay upon its plant and equipment, the franchise provides that there shall be paid the city 2 per cent of gross annual revenues from the sale of gas as a franchise tax for use of streets and alleys.

Maximum rates to be charged for gas are to be based upon use by the consumer, starting at $1.25 per 1000 cu. ft. for the first 2000 cu. ft., and dropping to 60 cents per 1000 cu. ft. where 20,000 cu. ft. are used.

◆ ◆

H. L. Spears Opens Station In California Agricultural Area

Bakern Liquid Gas Co., located south of Bakersfield, Calif., began the distribution and sale of liquefied petroleum gas early in March. H. L. Spears, owner and operator, plans to sell butane for domestic and automotive use throughout Bakersfield area, and as it is an extensive agricultural region, the use of butane for trucks and tractors is growing rapidly. It is this branch of business in which Mr. Spears is especially interested.

At present a 7500-gal. storage tank is being used for supply at the Bakern plant. An L. C. Roney vapor-differential system has been installed and a Brodie Meter is used at the dispensing station.

DEPENDABLE QUALITY

Dependable quality is vitally important to every retail marketer of Propane or Butane. Knowing this fact full-well, Philgas rigidly adheres to long-established specifications of quality and uniformity. This is your assurance of a consistent, high-quality, uniform product. It will be well worth your while to write today! Investigate the many Philgas "plus values". There is no obligation on your part. Buy Philgas—and profit!

Philgas
DEPARTMENT

PHILLIPS PETROLEUM COMPANY
GENERAL MOTORS BUILDING
DETROIT, MICHIGAN

NEW YORK | MILWAUKEE
PHILADELPHIA | ST. LOUIS
CHICAGO | AMARILLO
BARTLESVILLE, OKLA.

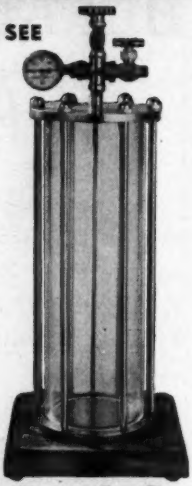
THE NATION'S LARGEST MARKETER OF LIQUEFIED PETROLEUM GASES

BU - CAN - SE

BUTANE YOU CAN SEE

- **A transparent container for Butane Gas.**
- **Constructed with Lucite for Safety.**
- **Action of Liquefied Petroleum Gases clearly Demonstrated.**

Descriptive bulletin available upon request.



The Refinery Supply Co.

621 E. 4th St. TULSA, OKLA.
1309 Capitol HOUSTON, TEX.

ETHYL MERCAPTAN

Purified

The ACCEPTED gas odorant.

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS NEW YORK

Harold W. Wickstrom

Consulting Engineer

Reports - Design - Conversions

◆

4800 Santa Fe Ave. Los Angeles

Many Fire Extinguishers Damaged by January Cold

A warning that the extremely low temperatures experienced during January have seriously damaged certain types of fire extinguishers has been issued by Fred Shepperd, manager of the International Association of Fire Chiefs, New York City. This damage has been very extensive in the South.

"The effect of freezing on soda-acid and foam types of extinguishers is to make them completely unfit for use," Mr. Shepperd said. "The expansion of the contents may weaken or burst the seams or stretch the copper shells. These damaged extinguishers can not be repaired satisfactorily, and in no case should owners attempt to solder the leaks and keep the extinguishers in service."

He urges that all soda-acid and foam extinguishers that might have been frozen be inspected at once so as to eliminate damaged appliances and restore fire protection. The damage done to soda-acid extinguishers by freezing usually can be detected but foam extinguishers should be opened to make sure that the inner container has not been crushed. Anti-freeze and vaporizing-liquid types of extinguishers are not likely to be affected by the cold as they can withstand temperatures of 40° below zero.

◆ ◆

T. P. Kelly Joins Harry King with Standard Gas Equipment Corp.

Thomas P. Kelly, who has for a number of years been working out of the Chicago office of Standard Gas Equipment Corp., has recently moved to New York as assitant to Harry King, New England manager for the same company. During his three years in Chicago Mr. Kelly specialized in hotel and restaurant installations.

Harry King's many friends in the trade will be glad to know that he has the doctor's assurance that the long siege of inactivity following his automobile accident in January is nearly over and he expects to be on hand for the New England Hotel Show in the latter part of April.

Two-Year-Old LPG Company Incorporates for $25,000

The Fargo Bottle Gas Co., of Fargo, N. D., which has been distributing propane for two years, has recently incorporated with a capitalization of $25,000.

Officers of the concern are Eugene P. McCahill, president; H. A. Andersen, vice president, and E. E. Hunting, secretary-treasurer. The incorporators were O. Gunvaldsen, Philip Garberg, P. B. Garberg and S. C. Garberg, all of Fargo.

◆ ◆

Pittsburgh Equitable, Merco Nordstrom Hold Sales Meeting

The final meeting in a series of district gatherings for the salesmen of the Pittsburgh Equitable Meter Co. and Merco Nordstrom Valve Co. was held at the factory in Pittsburgh during the week of February 19 with representatives from the Pittsburgh and Buffalo sales offices attending.

Starting early in January with a meeting in Tulsa, Okla., the company has, at weekly intervals, held sales meetings in each district office. Each meeting was conducted by Capt. A. E. Higgins, vice president and sales manager, who outlined to district men the sales objectives and merchandising plans for 1940. Chief Engineer A. D. MacLean presented the engineering aspects of recently introduced or improved products, and open discussions were held under the direction of factory men in order that every salesman would be fully informed.

The representatives from the factory in Pittsburgh conserved time by flying from meeting to meeting in the company plane piloted by Capt. Higgins.

◆ ◆

New Handigas Agent Named

The Liquefied Gas Co. of Ohio, distributor of "Handigas," is planning to establish an agency in Chagrin Falls, Ohio, through its distributor at Newton Falls. Cedric W. Morrison, of Chagrin Falls, is the Handigas representative.

These Labels Mean Highest Quality

AutomaticGas SYSTEM

This label on your Butane System means that it is nationally known: A. S. M. E. Code Built: approved by Underwriters' Laboratories: expertly engineered and constructed of the highest quality materials.

EVEREADY BUTANE GAS SYSTEM

This label on your Butane System means that you have the leading Quality Built competitive system on the market: A. S. M. E. Code built: approved by Underwriters' Laboratories: manufactured in one of the oldest, largest steel plants in the South.

Write, Phone or Wire for Complete Information

Automatic Gas Equipment Co.

Manufacturers and Distributors

2216-18 COMMERCE STREET • DALLAS, TEXAS

Peerless Wall Heaters

Today Buyers everywhere are demanding Peerless Gas-Fired Wall Type Bathroom Heaters.

No. 7612

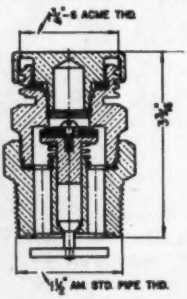
They are nationally accepted! 1939 Sales more than 30 times 1934. White or colored enamel finishes.

Write for complete catalogue and prices.

PEERLESS MANUFACTURING CORP.

LOUISVILLE **KENTUCKY**

TENNANT



Precision-Built

FILLER VALVE

for Butane Systems

(Type 1810)

Like all TENNANT APPROVED FITTINGS this Type 1810 Filler Valve can be depended upon to do its job well. Precision built. Rugged construction of heavy brass. Excess flow check is a structural part.

Write for catalog and price list of approved fittings for butane systems.

BUTANE GAS SYSTEM CO.

(Tennant Bros.)

1829 CLARENCE **DALLAS, TEXAS**

Proper LPG Installations Unaffected by Cold Spell

The Oklahoma Butane Gas Co., Oklahoma City, Okla., moved March 1 from its former location, 3010 N. Pennsylvania Ave., to larger quarters at 515 Robinson Ave. The new quarters are in a fireproof brick and concrete building, and C. J. Nicklas, owner, announces that a full line of butane-propane appliances and equipment will be added and displayed in the show room, which is about 25x25 ft. There is also a large storage and service room in the new quarters, as well as the office. All rooms in the building will be heated by butane.

The Oklahoma Butane Gas Co. is now operating two streamlined butane gas twin-tank delivery trucks. One of these, with a capacity of 1025 gals., was but recently placed in service and is being operated 16 hours a day over Oklahoma highways. The company will soon add a service truck and employ a sales manager and three salesman. (Photo below.)

E. F. Nicklas, service manager for the company, traveled 1500 miles during January, inspecting installations, equipment and making adjustments, where necessary. He says that such adjustments were required, almost exclusively, on equipment improperly installed by workmen not connected with the industry.

Rear view of a 1025-gal. streamline butane gas twin-tank delivery truck of the Oklahoma Butane Gas Co.

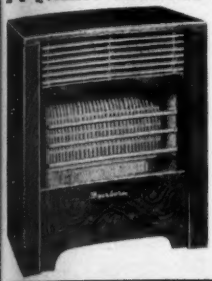
DEARBORN GAS BURNERS

DEARBORN HI-CROWN BURNERS

For Thrilling Butane Performance

VALUE

What it takes to startle the eye and win admiration Dearborn Heaters have and in a measure that challenges comparison. And to match this outward Beauty they boast an array of Features—Features no other heaters in the world duplicate regardless of price. Here is a QUALITY PRODUCT Engineered to get the heating job done Right and with price tags that sell. Write for the complete story.



Hi-Velocity Injector Entrains More Air

- 11 Rows Raised Ports
- Longer Venturi
- Bigger Air Bell
- Interior Diverters
- High Crown for Better Airation

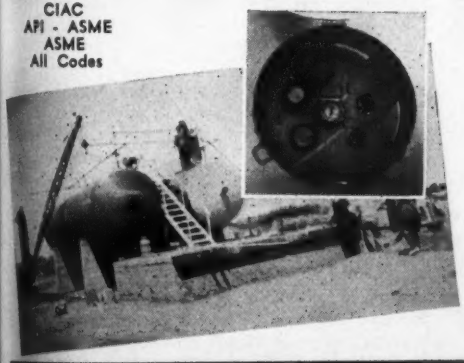
THE MIRACLE BURNER

Orifices of exclusive Dearborn Design, deliver gas at High Velocity and Dead Center in the long streamlined Venturi. Check Port Area—Port Depth—Air Bell Size—Venturi Length—Interior Design—and you will agree that here is a Soundly Engineered Burner.

DEARBORN STOVE COMPANY · 3250 MILWAUKEE AVE. · CHICAGO

ECONOMICAL

CIAC
API - ASME
ASME
All Codes



as well as SAFE

You need not sacrifice economy, or pay exorbitant prices to insure safety in your butane storage equipment. American provides you with equipment engineered to meet all safety codes, fabricated from the best materials by skilled workmen with long experience, at moderate prices. Most standard size tanks carried in stock . . . any special size supplied promptly on order. Bulk and domestic plants for surface and underground service. Consult our pressure tank experts regarding your requirements.

AMERICAN PIPE & STEEL CORP.
Sheet and Plate Fabrication
ALHAMBRA, CALIFORNIA

AMERICAN BUTANE and PRESSURE TANKS

STORAGE-SKID and MOBILE TANKS-HOUSEHOLD BOTTLES

Hackney
MILWAUKEE

Complete stock of Pressed Steel I. C. C. Cylinders in Los Angeles for immediate delivery.

ALWAYS IN STOCK

Butane Tank Fittings

Butane, Natural Gas Instruments, Domestic Regulators, Pigtails, Tanks, Gauges, Forged Brass Fittings, etc.

Pacific Coast Distributor

Drygas Butane Filters

AUTOMOTIVE INSTALLATIONS

We have made many of the largest automotive butane installations yet attempted in the L.P.G. field. Our bid and our work will please you.

ELECTRIC AND CARBURETOR ENGINEERING CO.

"Pioneers of the Butane Industry"

2323 E. 8TH ST. LOS ANGELES

Have You Tried a Filter?

That harmful substance that you find in your regulators and heat exchangers can be removed by using the

DRYGAS FILTER

For Butane, Propane or Natural Gas, this inexpensive filter will pay for itself. It contains no screen, felt or metal wool. Write for dealer discount.

DIX MFG. CO.

4111 S. Broadway, Los Angeles

STOP BUTANE LEAKS with

RECTORSEAL

You can stop leakage of Butane gas once and for all, by applying RECTORSEAL to every threaded or gasket connection on consumer tanks, bulk storage and truck tanks. RECTORSEAL forms a plastic, elastic mass impervious to Butane, and all other fractions of petroleum, and to heat up to 400° F. It makes a permanent leak-proof seal, yet permits easy breakout. Sold in container sizes to fit your needs.

RECTOR WELL EQUIPMENT CO., INC.
Ft. Worth National Bank Bldg., Ft. Worth, Tex.

Answers to Statements on Liquefied Petroleum Gas

On page 72 are 25 statements regarding important characteristics of liquefied petroleum gas. Below are the correct answers, but first see how many you can score correctly.

1.	True	14.	False
2.	True	15.	True
3.	False	16.	False
4.	True	17.	True
5.	False	18.	False
6.	False	19.	True
7.	True	20.	False
8.	False	21.	True
9.	False	22.	False
10.	True	23.	False
11.	True	24.	True
12.	False	25.	True
13.	False		

◆ ◆

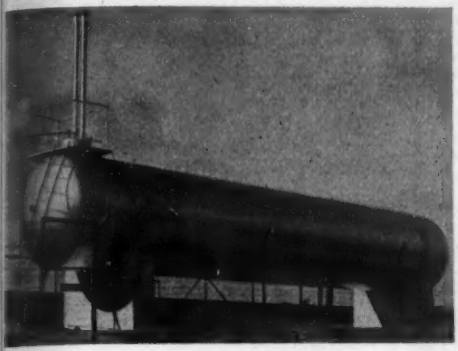
Shellane Sales Meetings Held in Midwest Cities

A series of three annual sales meetings for Shellane dealers and distributors in the middle west were held this month in Chicago (March 4, 5), Mason City, Iowa (March 7, 8), and St. Louis, Mo., (March 11, 12). According to F. B. Boice, sales manager, Shellane Department, Shell Oil Co., Inc., St. Louis, all three meetings were well attended.

Similar programs were presented at each meeting, and included talks by Mr. Boice and W. H. Hoagland, combustion engineer, Technical Products Department, and B. G. Symon, Shell Oil Co., Inc., who outlined the 1940 Shellane advertising program. Included in the programs also were representatives of Servel, Inc., Ruud Manufacturing Co., Detroit-Michigan Stove Co., and Cribben and Sexton Co.

◆ ◆

J. E. Reddick has organized the Reddick Butane Co. at Thackersville, Okla., and has recently purchased a 16,000-gal. butane storage tank and two 1200-gal. butane truck tanks. These were fabricated by Dallas Tank & Welding Co., Inc., of Dallas, Texas.



18,000 Gallon Water — 15,000 Gallon Liquid Propane Capacity Storage Tank 8'-0 - 1/16" I. D. by 50'5¼" long, 200 lbs. per square inch working pressure.

Complete bulk plants designed, fabricated and installed by experienced men. Detailed information and estimates furnished without obligation.

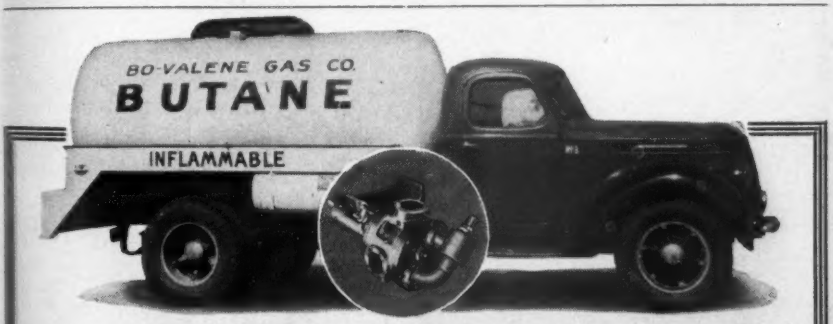
LEADERSHIP!

Quality - Safety Economy

Butane-Propane tanks fabricated in strict accordance with the ASME code; API-ASME Code; Dept. of Public Safety, Commonwealth of Massachusetts; and National Board of Boiler & Pressure Vessel Inspectors regulations.

Bulk Tanks - Skid Tanks
Truck Tanks
for
Butane • Propane
Butane-Propane Mixtures

LANCASTER IRON WORKS, INC.
LANCASTER PENNA.



1 PUMP . . . 8 INSTALLATION ANGLES

Another exclusive feature of the new Viking Butane-Propane Truck Mounting Pump is its flexible casing. By removing the head bolts of the pump you can rotate the casing to any one of 8 different angles. This assures a quick, efficient installation with no "right" or "left" hand ports to worry about . . . with no time-taking piping problems. Bulletin 2301-40 explains this exclusive Viking feature in full—write for a copy.

VIKING PUMP COMPANY

CEDAR FALLS - IOWA

SPRAGUE METERS

for

PROPANE-BUTANE SERVICE

●

Write for Particulars

SPRAGUE METER COMPANY

Bridgeport, Conn.

BUTANE FUEL TANKS

SKID TANKS TRANSPORT TANKS
STATIONARY STORAGE TRUCK TANKS
UNDERGROUND SYSTEMS

A.S.M.E. U-69 Construction
N.F.B.U. No. 58 Safety Regulations

McNamar Boiler & Tank Mfg. Co.
TULSA, OKLA. SALEM, ILL.

MERIT

Use Our Complete BOTTLED GAS *Laboratory Facilities!*

A Real Water Heating Service

Write for Catalog "BP" and Sales Handbook

Merit Water Heater Co.
COMPTON, CALIFORNIA

American Liquid Gas Names W. L. Conzelman Manager

Under the direction of W. L. Conzelman, new general manager of the organization, the American Liquid Gas Corp., of Los Angeles, began operations recently on a new and more extensive scale.

Planning more extensive wholesale manufacturing and merchandising of equipment for liquefied petroleum gas, the company is discontinuing the retail sale of butane and propane and has augmented its facilities for the manufacturing and sale of Algas butane carburetors and other products for use in the industry.

In becoming associated with the American Liquid Gas Corp., Mr. Conzelman once again becomes active in a field in which he was engaged several years ago. From 1915 to 1934 he was half-owner and acting secretary-treasurer of the Ensign Carburetor Co. Since that time he has had his own company for the manufacturing of lubrication equipment.

Before making connections with American Liquid Gas he spent six months in making a thorough study of the butane field, whose future, Mr. Conzelman states, is assured of a continued growth. He plans to take an active part in this development.

Several new items for the handling of butane and propane are soon to be placed on the market by the American Liquid Gas Corp.

◆ ◆

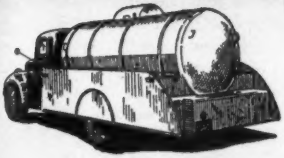
Bert Taine Locates Plant Near Walla Walla, Wash.

Bert Taine, of the Oregon Hydro Gas Co., Bend, Ore., applied to the Walla Walla, Wash., city commission in February to install a butane plant within the city limits, but was refused because of an ordinance restricting petroleum company operations to one limited district, and therefore he announced it as his intention to establish a plant just outside the city. The Washington company will be known as the Butane Engineering Co.

Mr. Taine stated that he planned to install a 13,000-gal. storage tank and the usual service equipment.

THE BUTANE INDUSTRY LOOKS TO THE LEADER *for*

• Underground Tanks • Bulk Storage Tanks • Truck Tanks



A. S. M. E. CODE CONSTRUCTION

ECONOMY BUTANE-PROPANE SYSTEMS are constructed for 100.8 lb., 125 lb. and 175 lb. working pressure for underground use; 200 lb. working pressure for above ground. ALL ECONOMY SYSTEMS bear Underwriters' label and inspected by the Ocean Accident and Guarantee Corporation, Ltd.

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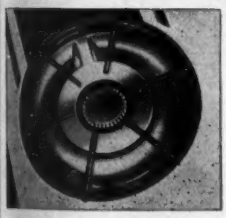
Turn on the Sales Heat with this new TAPPAN *Feature*



The New Tappan MIGHTY-MITE BURNER

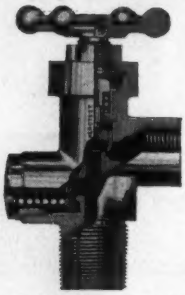
EVERYTHING THAT THE NAME IMPLIES

• Tappan again presents a new milestone in burner development—the new Mighty-Mite burner. With greatly increased efficiency, the Mighty-Mite has speed, yet provides a very low turndown for simmering. See the 1940 Tappan Features. • *Cove Top* • *Bowl Burners* • *Self-opening compartment doors* • *Serva-trays*

THE TAPPAN STOVE COMPANY
Mansfield, Ohio

TAPPAN GAS RANGES

KEROTEST
CYLINDER VALVES



The valve illustrated herein has been proved in service by many of the leading manufacturers and distributors of liquefied petroleum and includes the famous KEROTEST diaphragm packless internal with automatic spring relief type safety device.

KEROTEST
KEROTEST MANUFACTURING COMPANY
PITTSBURGH PA

STEEL BUTANE TANKS
HIGH PRESSURE VESSELS
for all purposes

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Resolutions of a Philgas Salesman

In a recent issue of *The Blue Flame*, official publication of the Philgas Department, Phillips Petroleum Co., and edited by M. W. Welty, appears a list of resolutions for Philgas salesmen. It was compiled by J. Sepowski and may be inspiring to all men on the sales front. It is with that hope that they are republished here:

I will get in more canvass calls each day so that the Law of Averages will work harder for me.

I will see every Philgas user in my territory as often as possible—at least twice a year.

I will use my users more consistently so as to secure a better grade of Philgas prospects.

I will talk in terms of an "all Philgas kitchen" on every call, rather than in terms of only a range, a water heater, or an Electrolux.

I will make more trailer demonstrations by making more demonstration appointments.

I will make all my night calls by definite appointment whenever possible.

I will confine myself to my alloted territory for each particular day. I realize full-well that I cannot sell Philgas while I am riding in my car.

I will increase my number of "bird-dogs" and keep them all constantly hustling for me.

I will make sure that more people know the complete Philgas story than ever before.

I will rest secure in the knowledge that by accomplishing all this my Philgas sales will take care of themselves.

◆ ◆

Automotive Engineers Will Meet In Los Angeles, April 12-13

The Society of Automotive Engineers, Los Angeles, will bring together a large group of automotive men interested in new developments in that field at a meeting scheduled for April 12-13 at the Elks Club.

Butane will be well represented, for display booths with the latest LPG equipment for automotive butane installations are to be on display. Other equipment to be presented will include engines, power units of all types, tractors, natural gas devices and automotive accessories now on the market.

A number of the local LPG companies have announced their intentions to have displays at the two-day meeting. Men interested in the development of liquefied petroleum gas for automotive use will have the opportunity to compare the various types of equipment now on the market.

C. N. G. A. Issues Bulletin On Specific Gravity of Gases

Following more than two years of intensive study, conference and committee work, the California Natural Gasoline Association has announced publication of its new bulletin, TS-391, titled, "Tentative Standard Methods for Determining the Specific Gravity of Gases." The announcement was jointly released by W. W. Robinson, Jr., of The Texas Co., who is general chairman of the group's Technical Committee and W. L. Cowan of the Union Oil Co., who is the chairman of the sub-committee in charge of drafting the new bulletin.

W. L. COWAN

According to Mr. Cowan, it is well-known that the proper determination of specific gravity is of utmost importance in the derivation of correct coefficients for orifice meters and the industry has long needed a reliable presentation of the different methods by which this test may be made.

In content, the bulletin discusses the limits of application, apparatus, sampling, field and laboratory test procedures and the calculation of results. The various specific gravity methods discussed are (1) Edward's balance; (2) the Ac-Me suspension balance; (3) Anubis balance; (4) globe weighing; (5) gas analysis; (6) effusion method; and (7) the determining of specific gravity by indicating and recording gravitometers. The apparatus for carrying out each of the tests is described and the description is fully supplemented with notes on calibration. The effect of water vapor on the determination of specific gravity is also covered and comments are given on the application of temperature corrections, the use of mercury columns and purification of air. Further information may be had from Geo. L. Tyler, secretary, 510 W. 6th St., Los Angeles.

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PROPANE and BUTANE

for the distributing and industrial trade. Shipping point: Seminole, Oklahoma.

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The Most Distinctive Underground Storage System on the Market

Manufactured by

NATIONAL BUTANE GAS COMPANY

MEMPHIS, TENNESSEE

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NOW EXCLUSIVE
REPRESENTATIVE FOR

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Liquefied Petroleum Equipment

IN 8 STATES

CALIFORNIA	NEW MEXICO
NEVADA	OREGON
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The addition of three states to the area we have served in the past now gives the entire West Coast section the advantages of prompt shipments from a complete Los Angeles stock.

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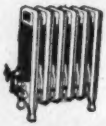
1740-44 W. 59TH ST. • LOS ANGELES, CALIF.

CLOW GASTEAM RADIATORS

Make Their Own Steam Heat With Any Gas



Send for Copy of Our Architects Manual

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Especially Designed
For Butane-Propane Gases
For All Purposes
with
Satisfaction Guaranteed

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F & E MANUFACTURING CO.
2918 Otis Street, Berkeley, Calif.

Los Angeles Has Adopted LPG For 72 Rubbish Trucks

Plans for the butane conversion of its non-combustible rubbish trucks used in Los Angeles, Calif., reached a step nearer completion during March when city engineers accepted a bid on a 7000-gal. underground storage tank.

Installation of the tank and dispensing equipment is now being made by Butane, Ltd., of Los Angeles. The dispensing equipment will consist of two "islands" with meters and pumps, and will be one of the largest yet put into use.

Los Angeles plans to equip all of its 72 non-combustible rubbish trucks with LPG units. Of this number, five will be new trucks, coming from the factory with butane equipment already installed.

Of the five trucks now in service which are using butane, each has a different make of carburetor in use for test purposes. When the city has determined the type of unit most applicable for existing need, the remaining trucks will be changed over to the preferred type, thus standardizing the entire fleet.

◆ ◆

A. L. Francis Will Represent Roper Corp. in Texas

Alfred L. Francis, who has been selling household appliances for a number of years in Texas and Oklahoma, will now represent the Geo. D. Roper Corp., of Rockford, Ill., in the State of Texas.

With headquarters at Lubbock, Mr. Francis and J. C. Mansfield will give increased service to west Texas customers of the Roper Corp.

◆ ◆

Pure Oil Co.'s New Equipment Raises Its Butane Output

With an additional investment of $12,000 for new equipment, the Pure Oil Co. has increased its butane output to a total of 3000 gals. per day at the Van, Texas, plant.

Up to the present time, the Warren Petroleum Co. is reported to be purchasing the complete output.

"Ring A Million Doorbells" Campaign Boosted Rural Sales

Tending to prove that Electrolux gas refrigerators can be sold throughout all seasons of the year, the "Ring A Million Doorbells" campaign of Servel, Inc., which ran the last three months of 1939, showed that the winners each averaged approximately eight and a half sales for the period. Because of a late start in October and the interruption of the Holiday season, this was deemed to be the equivalent of about one sale per week for the time actually spent in the field.

This was one of the first Servel contests in which salesmen selling to liquefied petroleum gas users were in competition with one another.

The grand prize of $100 was awarded J. C. Bourland, employed by Bruce Griffith, Inc., Hobbs, N. M., who made a total of 20 installations during the contest period. Five salesmen made the second group which received $50 each for from 10 to 11 sales; six received $25 each for from eight to nine sales, and 10 got $15 each for from six to seven sales. Winners were scattered rather generally throughout the country.

◆ ◆

The "101" Ranch of Old West Goes Modern with Butane

The National Youth Administration "101" Ranch project, near Marland, Okla., went modern with butane gas during the last week of January when coal and wood stoves were discarded for gas equipment.

Ten butane burning heating stoves, a large cook stove and three water heaters, also utilizing butane, were installed in the cafe, the dormitory, office, shower and locker rooms at a total cost of $6000.

About 50 youths are housed at the famous old "101" Ranch, restoring the old "white house" and other buildings to their original condition. It is intended to make the ranch and its buildings a permanent show place and museum, recalling old, wild west days.

The butane heating and cooking equipment was installed under supervision of the Farm Security Administration.

APPROVED GAS RANGES FOR LIQUEFIED PETROLEUM GAS

CROWN

Model 135-04 Divided Top Gas Range

Write Today for Catalog Showing Complete Line

CROWN STOVE WORKS

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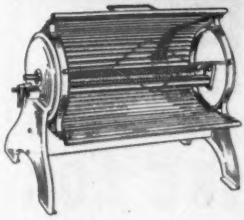
HUMPHREY

Quality Appliances for

BUTANE · PROPANE



The HUMPHREY RAFIRE

A Portable, radiant type heater that is amazingly different.

Sell the New, Low Priced Humphrey RAFIRE —the radiant heater with the unbreakable CHROMEL element. Smartly styled and durably built. Write today for complete literature.

GENERAL GAS LIGHT CO.

KALAMAZOO, MICHIGAN

MAGNETIC GAS VALVE
TYPE K-3B

GREATEST RANGE OF SIZES
From 3/8" to 6" inclusive, fulfill requirements of most gas applications.
This quiet, current-failure, two-wire valve opens and closes fuel supply line at demand of thermostat or similar device. Its simplicity, reliability, and low cost of operation has won universal acceptance for positive control of almost all gas-fired applications. Write for New 1940 Catalog.

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Guarantees constant and convenient supply of
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Liquefied Petroleum Gas

GLO-FIRE LOG
Assures Odorless, Economical Circulating Heating Operation with
Butane and Propane
For Information Write
GLO-FIRE CO.
ELSINORE CALIFORNIA

Caribbean Hydro-Gas Co. Will Pioneer Lands to the South

C. Charley Wight, president of the Caribbean Hydro-Gas Co., has announced the opening of a Houston, Texas, office of his company. It is at Houston and Galveston where water shipments of liquefied petroleum gas and gas equipment to offshore points will center. Wm. D. Welburn, Jr., secretary-treasurer of the Caribbean Hydro-Gas Co., states that developments of this company are making satisfactory progress. It is proposed to serve an area having a population of approximately 26,000,000 people. Many portions of that area have highly developed agricultural and manufacturing enterprises to which a liquefied petroleum gas service will supply a most desirable fuel.

The operations of the Caribbean Hydro-Gas Co. are being observed with great interest by leaders in the LPG industry. Extension of liquefied petroleum gas service in the Caribbean and Central and South American areas promises to be one of the greatest contributing factors to desired increase in trade relations with those areas, with reference to application of entirely new projects.

◆ ◆

The Dalles, Ore., Increases Gas Plant Capacity

The Dalles (Ore.) Natural Gas Co., Inc., has made improvements and enlargements in its LPG plant that will result in increasing its capacity by 60 per cent, according to Grover Keller, owner of the system.

The Dalles plant was first installed in 1932, with an hourly capacity of 7200 cu. ft. of 500 B.t.u. gas.

◆ ◆

Hollister, Calif., Gets LPG Service Station

Frank J. Dassel has installed a mile west of Hollister, Calif., the first service station in that section equipped to serve butane for trucks, tractors and domestic uses. It is located on San Juan road.

The plant was completed early in March under the management of Ray Dassel.

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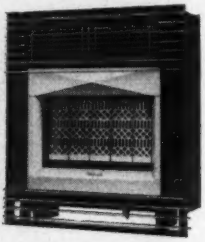
CIRKLAIR GAS HEATER INSET UNITS PRODUCE SALES IN SUMMER



CIRKLAIR Inset Units (A. G. A. approved) can be sold in the summer when houses are being built and old houses repaired and remodeled. These heater units are installed in sham mantels, bathrooms and various types of wall heaters. Going after this summer business secures nice profits.

Write for CIRKLAIR FACTS.

CIRKLAIR PRODUCTS DIV.

The Folsom Co. "Since 1909"

509-515 Elm **Dallas, Texas**

Style No. 60

Won't Leak, Stick or Bind

CHIKSAN **Ball-Bearing** Swing Joints are Butane and Propane tight. Made in 17 different styles for pressures to 3,000 lbs.

Write for Catalog

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Sell DAY AND NIGHT

"America's Finest Water Heater"

1. 100% Safety Devices. 2. Economical Operation. 3. Foolproof Non-adjustable Burners — all insure complete customer satisfaction.

DAY & NIGHT WATER HEATER CO.

MONROVIA, CALIFORNIA

Catalogs on Burners, Torches Issued by Ransome Co.

One of the most interesting of many features described in the new Ransome Co. (Emeryville, Calif.) catalog on Forster burners is the overhead heater. It is said to be so designed that the greatest possible amount of heat energy is converted into radiant heat, directed downward from the ceiling, and evenly distributed over a wide area. As such, it serves especially well school and club rooms, dance halls, factories, garages and stores—places where "spotted heat" is desired and floor space is valuable.

Other heating units described are the field water heater, the salamander heater, the heating pot and the rivet heater. Besides, there are complete specifications on the wide range of commercial, industrial and domestic burners that are handled.

In the catalog covering Forster torches will be found an orifice capacity chart and tables covering pressures, flow rates for propane vapor, propane capacities of different sized standard orifices at upstream pressures, descriptions of many varieties of torches, paint burning outfits, plumbers' furnaces, bench and blast burners, and the Forster "back pack" outfit which has been widely used in disinfecting shipholds, hog, brooder and chicken houses, insect destruction, agricultural weed burning and forest fire fighting through rapid backfiring methods.

All Ransome Co. products described in the above catalogs are adapted for use with liquefied petroleum gases as well as with natural and manufactured gases.

◆ ◆

American Gas Service Co. Will Have Offices at Attica, Ohio

The American Gas Service Co. has selected Attica, Ohio, as a cite for a central distributing plant for liquefied petroleum gas. The area to be covered has a radius of approximately 75 miles, with potential customers totaling 5000. According to C. H. Anderson, district manager, Attica will become district headquarters, which are now located in Sandusky. The plant will cost $50,000.

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"SAFE"

IS PART OF OUR NAME!

If it's "SCAIFE-WELDED" it's Safe!

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The satisfaction you get from the use of Scaife Cylinders for your Bottled Gas is due largely to the confidence your trade has in Scaife products. Since 1802 Scaife has meant quality everywhere. So when you tell your customers you use Scaife Cylinders, you are telling them that they are getting the Best!

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MAKE BUTANE EASY TO HANDLE

Brodie Meters equipped with highly-visible, direct-reading Brodimatic Counters greatly simplify Butane handling—by placing a closer check on each delivery. Costly errors are prevented. Valuable hours of precious time are saved. Trucks become more efficient. Inaccurate guesswork is eliminated. For the Brodimatic error-proof counter with its large legible numerals that snap-in, snap-out of their windows gives totalized readings that are easy to see, easier to read, easiest to understand. Hence you'll find Butane really becomes "easy to handle"...

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BRODIMATIC *Counters*

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